SB 8-75-S6

DEPARTMENT OF THE ARMY SUPPLY BULLETIN

Army Medical Department Supply Information

Headquarters, Department of the Army, Washington, DC 20310-2300 20 June 2006

Effective until rescinded or superseded

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can improve this publication. If you find any mistakes, or you know a way to improve it, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to the U. S. Army Medical Materiel Agency, ATTN: MCMR-MMO-SM, Fort Detrick, MD 21702-5001. If you prefer using email, please address it to **usammacrm@amedd.army.mil**.

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Special Notice
This Supply Bulletin is Dedicated Entirely To The
US Army Medical Materiel Agency, Maintenance Depots Information

CHAPTER 1. MEDICAL MAINTENANCE SUPPORT INFORMATION

1-1. MAINTENANCE OPERATIONS DIVISION (MOD) CHIEF PERSONNEL

The USAMMA MOD serves as an Army Medical Department (AMEDD) focal point for multiple aspects of medical materiel maintenance. The MOD is made up of the Office of the Chief with depot-level medical maintenance operations divisions (MMOD) at Hill AFB, UT; Tobyhanna, PA; and Tracy, CA.

Chief, Maintenance Operations (DSN 343-4365, commercial 301-619-4365)
Chief, MMOD, Hill AFB, UT (DSN 586-4947, commercial 801-586-4947)
Chief, MMOD, Tobyhanna, PA (DSN 795-7744, commercial 570-895-7744)
Chief, MMOD, Tracy, CA (DSN 462-4556, commercial 209-839-4556)

1-2. MEDICAL EQUIPMENT SUPPORT

a. The appropriate equipment and customer information is critical for the timely processing of your equipment and providing the best customer support. When shipping medical equipment for services at any one of the USAMMA Maintenance Divisions please include the following information:

Owner UIC:
Owner DODAAC:
Unit Name:
Branch of Service: (Regular Army, National Guard, Air Force, Navy)
Shipping Address:
City:
State:
Zip Code:
Point of Contact:
Commercial Telephone Number:
DSN:
FAX:
E-mail Address:

b. See Appendices A, B, and C for copies of each medical maintenance operation's External Standard Operating Procedures. These procedures provide specific guidance to assist you with receiving medical maintenance support.

c. Army Reserves, please coordinate support with your Regional Training Site - Medical.

d. The three Medical Maintenance Operations Divisions provide medical equipment maintenance and technical support for the states indicated below:

HILL AFB, UT - DSN: 586-4947, Commercial: 801-586-4947

AK	ID	MT	WY
UT	CO	ND	SD
NE	KS	MN	IA
WI	MO	IL	MI
IN	KY		

Tobyhanna, PA - DSN: 795-7744, Commercial: 570-895-7744

TN	AL	GA	FL
SC	NC	VA	WV
OH	VT	PA	NY
NH	ME	MA	RI
CT	NJ	DE	MD

Tracy, CA - DSN: 462-4556, Commercial: 209-839-4556

WA	OR	CA	NV
AZ	NM	TX	OK
AR	LA	MS	HI

e. Contact the Maintenance Division that supports your area for questions regarding support. Information is also available at **http://www.usamma.army.mil/**.

1-3. MAINTENANCE DIVISIONS' ADDRESSES

a. MMOD – UT

(1) Mail address

U.S. Army Medical Materiel Agency
Medical Maintenance Operations Division
ATTN: MCMR-MMM-DU
6149 Wardleigh Road
Building 1160
Hill Air Force Base UT 84056-5848

(2) Freight address

U.S. Army Medical Materiel Agency
6149 Wardleigh Road
Building 1160, Bay 1
Hill Air Force Base UT 84056-5848

b. MMOD – PA

(1) Mail address

USAMMA MED MAINT OPS DIV – PA
ATTN: MCMR-MMM-DP
Tobyhanna Army Depot
11 Hap Arnold Boulevard
Tobyhanna PA 18466-5063

(2) Freight address
U.S. Army Medical Materiel Agency
Medical Maintenance Operations Division
Warehouse 4, Bay 1
Tobyhanna Army Depot
Tobyhanna PA 18466-5063

c. MMOD – CA

(1) Mail address

U.S. Army Medical Materiel Agency
Medical Maintenance Operations Division
ATTN: MCMR-MMM-DC
Building T-255, Tracy Site
Defense Distribution Center
P.O. Box 960001
Stockton CA 95296-0970

(2) Freight address

U.S. Army Medical Materiel Agency
Medical Maintenance Operations Division
Building T-255, Tracy Site
25600 Chrisman Road
Defense Distribution Center
Tracy CA 95304-9150

1-4. INSCRIBING EQUIPMENT

Please do not permanently inscribe local and unit information onto your medical equipment. When equipment is turned in to the USAMMA, every effort is made to rebuild the equipment to a like new condition. Inscribing unit information on the equipment significantly increases the cost of refurbishing these items for re-issue. To mark your equipment, please use a label.

1-5. STORAGE AND SHIPPING CONTAINERS

a. Many of the re-usable containers used to store and ship medical equipment and test, measurement, and diagnostic equipment (TMDE) contain foam products that deteriorate due to age or other factors. Over time and with use, the foam begins to break down into tiny flakes. This condition can render the TMDE and other medical equipment useless or have an impact on the full mission capability of the equipment and/or calibration verification.

b. If you cannot replace the foam inside your re-usable containers, we highly recommend that you place the TMDE/medical equipment items in a plastic bag prior to placing it into the case. This will prevent contamination of the equipment.

c. The MMOD at Hill AFB, Utah, has made arrangements with ADR Packaging to manufacture the inserts used in different cases. They use polyethylene foam in gray at 0.9 lb density, in green at 1.2 lb density, and in blue at 1.7 lb density.

d. The USAMMA has had very good results with the green polyethylene. The cost of the 1.2 lb density is approximately $0.50 - $0.60 per board foot (12" x 12" x 1") plus scrap that results in the forming of the pieces.

e. ADR Packaging can be contacted at 400 North Geneva Rd #C, Lindon, UT 84042. Telephone number is 801-796-3700. Fax number is 801-796-3800.

1-6. MEDICAL EQUIPMENT SERVICE LITERATURE SUPPORT

a. Biomedical technicians that do not have literature or manuals to support their authorized medical equipment can contact the medical maintenance operation that supports

their region and we will provide them a disk that contains the manual. Ensure you have the correct NSN, model, and manufacturer.

b. Additionally, medical equipment operator and service literature is also available from the USAMMA, Materiel Acquisition Directorate at 301-619-4379.

1-7. USAMMA'S LOGISTICS ASSISTANCE PROGRAM

a. The USAMMA Force Sustainment Directorate is in the process or revising their Logistics Assistance Program. The program is designed to assist medical TOE organizations with identifying logistics management concerns and solutions.

b. A web-based questionnaire with information-specific links is available at the USAMMA home page (www.usamma.army.mil). The medical maintenance portion of the program's questionnaire provides a wealth of maintenance-specific information for all your TOE medical maintenance needs.

c. Appendix D of this bulletin provides an excerpt of the web-based questionnaire.

1-8. DEFENSE REUTILIZATION MANAGEMENT OFFICE (DRMO)

DRMO facilities across the U.S. are reorganizing. The DLA has an excellent web site at http://www.drms.dla.mil/meo/home.htm. The site has a wealth of information regarding the DRMO process. It also lists the DRMO sites across the country. This site is certainly worth visiting.

1-9. MEDICAL MAINTENANCE OPERATIONS IN MTOE UNITS, *TB MED 750-2*

a. The MEDCOM is in the process of reviewing the final "DRAFT" *TB MED 750-2* in preparation for publishing. It is never too late to provide suggestions and/or comments. A copy was recently published in SB 8-75-11, Appendix C.

b. Appendix E of this supply bulletin includes a copy of the "SAMPLE" Standard Operating Procedures (SOP) for a Combat Support Hospital (CSH) that was taken from the draft *TB MED 750-2*. This sample SOP can be modified/tailored to fit any type medical organization.

1-10. TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE) AUTHORIZATIONS

a. The AMEDD Combat Developer continues to work the Operational Requirements Documents (ORD) and Basis of Issue Plans (BOIP) to ensure all TOE medical organization with a medical maintenance capacity are authorized the TMDE necessary to provide unit level medical maintenance support.

b. Appendix F of the supply bulletin includes several tables that will help identify the appropriate levels of TMDE for your organization.

CHAPTER 2. MEDICAL EQUIPMENT MAINTENANCE INFORMATION

2-1. ANESTHESIA APPARATUS, 6515-01-457-1840

EXTERNAL O_2 AND N_2O REGULATORS VERIFICATION

Draeger does not provide verification procedures for the external O_2 and N_2O regulators used on the NARKOMED M anesthesia machine. The USAMMA has developed procedures to verify the performance of the regulators. The test procedures verify that the regulators operate according to Flotec specifications. Appendix G illustrates the verification steps for the O_2 regulator, part #RN510-600. Appendix H illustrates the verification steps for the N_2O regulator, part #RNJM05-6005.

2-2. ARTHROSCOPIC SYSTEM, 6515-01-431-9631

a. During preventive maintenance checks and services (PMCS) on the Olympus-America, Inc. Arthroscope, the fiber optic bundle should be inspected carefully, ensuring that it still has 80 percent light conductivity and no breaks in the center of the bundle. PMCS includes a visual inspection of the equipment for any damaged parts or deficiencies that will prevent the unit from being used or sterilized.

b. The Arthroscope System comes with one each of the following items:

3093, Fiberoptic cable, 6515-01-139-8567
7584, Single sheet with stopcock (OBTURATOR, CONICAL), 6515-01-166-3504
7599, Trocar, Pyramid, 6515-01-166-3528
7600, Trocar, Blunt Tip Sleeve, 6515-01-173-2452
7595, Scope, 6515-01-171-6050

2-3. BATTERY SUPPORT SYSTEM, 6625-01-192-9460

Electrical safety testing of the Battery Support System for use with Physio Control's Defibrillators/Monitors Life Pak 5 has two items to note:

a. Case leakage of the Battery Support System should be less than 100uA with both an open ground and normal ground. In order to make a good ground contact, insert a probe in the rear vents of the unit and make contact with the heatsink.

b. Ground resistance for the Battery Support System cannot be verified using a safety analyzer. Verify resistance using a multimeter from the AC ground pin to the negative battery terminal in the battery (charging) compartments. The reading should be less than .66 ohms.

2-4. COMPUTED RADIOGRAPHY, 6525-01-504-5002

a. Cassette Error and Replacement Issues

(1) A common problem with the Orex PcCR 1417 system is that when the cassettes are being erased or scanned an error will sometimes pop up on the screen. The Error reads “WO Sensor ON State Fail.” To correct this, Source One’s guidance was to pull down on the cassette tabs and tap the closed end of the cassette on a table. This ensures that the plate on the inside of the cassette is positioned at the very bottom of the cassette. When the cassette is run again the error message may be gone.

(2) In the event that this does not correct the problem, Source One recommends that the plate be taken out of the cassette, turned 180 degrees, and installed back into the cassette. Make sure to position the plate to the bottom of the cassette by again pulling down on the tabs and tapping the cassette on a table. If this does not correct the problem, it is time to order another cassette. At the time of the above referenced discussion, the price for a 14 x 17 cassette w/plate was $1,290 each. Doing these extra steps to increase the life of your cassette w/plate may help save precious resources.

b. Computed Radiography System Software Issues

(1) The Army started purchasing the Orex PcCR 1417 system approximately 3 years ago. Since then there has been about 266 scanners purchased. Of these 266 scanners we have 4 different hardware versions (96 of the first version, 71 of the second version, 12 of the third version, 87 of the fourth version) and about 21 different software versions. The scanner interface software has changed 16 times and the application software has changed 5 times. Orex has released a new improved version of the parts manual. Still, it has a very limited quantity of part numbers.

(2) Tobyhanna is dedicated to provide Orex support. To help simplify the software issue, all the different versions of the software have been tested; the number of Orex Scanner Interface Software versions has been reduced to three. The application software versions have been reduced to one single version.

(3) About 80% of the problems with these systems in the field are software related, mostly as a result of using the computers for web access. Please do not use the computer for internet purposes.

(4) To help reduce some of the frustration in the field, the USAMMA has made a DVD System Disk for this system. With this disk you may reload the complete software on the hard drive on any version of the scanner. Along with the software are the latest manual updates, and the instructions and software needed to configure the system for DICOM In, Modality Worklist, Remote Patient Entry, and Diagnostic Viewer. The USAMMA has made (and periodically updates) a list of all the scanners by serial number and lists the correct software to use.

(5) Questions or comments should be directed to 570-895-7734 or DSN 795-7734.

2-5. CONCENTRATOR, OXYGEN, 6515-01-434-4629

a. When testing the AIRSEP oxygen concentrator for purity, it is recommended that you use a Fluke Biomedical Gas Flow Analyzer, model VT Plus or equivalent O_2 measuring device with a waveform producing capability. The VT Plus produces a waveform which enables you to identify occasional O_2 output purity fluctuations. This waveform should remain fairly level and fluctuation of the oxygen levels should be minimal.

b. When using alternative test equipment to verify the concentrator, it may appear as though the concentrator is passing the purity tests; however, visibility of intermittent fluctuations where the purity drops below acceptable oxygen levels may be unseen. Low purity is primarily a result of bad sieve beds. Additionally, a bad mixing tank can also cause fluctuations in the oxygen purity. Anytime you replace the sieve bed assembly, part # BE001-1R, you should also replace the mixing tank assembly part # TA-089-2.

c. There are two versions of this O_2 concentrator on the market. The newer version includes a design change that is not in the OEM service manual. In the older version, the pressure outlet is located on the right side as you face the front of the unit. In the newer version, the pressure outlet is in the rear of the unit; however, access it from the right side. Remove the right side cover and locate the tube with the pressure outlet attached. Connect your pressure gauge to this tube. All other aspects of the testing are the same.

2-6. DEFIBRILLATOR, MONITOR RECORDER, 6516-01-515-4197

a. Non-Invasive Blood Pressure (NIBP) Leak Testing Procedure

(1) Zoll Medical Corporation is in the process of publishing revised NIBP leak testing limits (PM Procedure #20.0) to reflect the variances between the two different testing methodologies associated with different types of NIBP Analyzers.

(2) Zoll's service manual calls for a BIO-TEK BP Pump NIBP Monitor Analyzer or equivalent in its testing procedures. The requirement to identify two different limits is based on the use of a test cuff when using the DNI CUFFLINK Analyzer.

(3) Zoll has identified the following leak test limits for the two types of Analyzers:

(a) BIO-TEK BP PUMP NIBP MONITOR ANALYZER - No change.

A volume leak reading less than or equal to 4 mmHg, the unit passes the test.
A volume leak reading greater than 4 mmHg; the unit fails the leak test.

(b) DNI CUFFLINK ANALYZER

A volume leak reading less than or equal to 10 mmHg, the unit passes the test.

A volume leak reading greater than 10 mmHg; the unit fails the test.

(4) This information provided by the Senior Technical Support Representative, Zoll Medical Corporation. Phone 1-800-242-9150 ext. 9195, e-mail jtoma@zoll.com.

b. CCT Defibrillators Software Update

In August 2004 Zoll updated the M series CCT defibrillators software from Rev. 56.00 to Rev. 57.00. This update only affects the summary report, nothing else. The manufacture has advised that if a defibrillator needs the software update but has recently had a full PM inspection or is within its calibration date, another full PM is not necessary following the software update. All that needs to be checked is the summary report test, which is step 14.0 (14.0 – 14.4), in the manufacture's service manual test procedures. Nothing has changed on the Summary Report Test procedure; perform this test just as stated in the service manual. The manufacture does not foresee another update in the immediate future.

2-7. DENTAL OPERATING UNIT, FIELD, 6520-01-493-3759 (AKA "DEFTOS")

a. When unpacking the Bell Dental Products Field Dental Operating Units sent to our medical maintenance operations depots for maintenance and repair, we are finding the hoses in pouch number 2 to be pinched due to improper packing. This is caused when the unit is packed backwards (front of unit facing back of case) and when the contents of pouch number 2 are not properly packed.

b. The unit should always be packed in the case with the front of the unit facing the front of the storage case, as stated in the operating and service manual. This will protect the circuit breakers as well as the connectors, which are on the back of the unit. This will also give a flat surface to help protect the contents of pouch number 2 from being pinched. When packing the pouches, the hoses and cords should be coiled so that the diameter of each coil is as wide as possible to ensure that the pouches are not too thick when placing them into the storage case. When the pouches are too thick, the hoses tend to get pinched from the force placed on them. The laminated instruction cards should also be placed between pouch number 2 and the instrument tray assembly to ensure that the tray support doesn't pinch the hoses.

2-8. ELECTROSURGICAL APPARATUS, 6515-01-309-6647

a. There are two versions of the Valleylab, Force 2 electrosurgical unit. The PRSF board in the Force 2 generator changed in 1995. You can determine the year of manufacturer of your equipment by the serial number. The charge below is an F6E9999T breakdown example.

F6E9999T Breakdown				
F	6	E	9999	T
Force 2	Last number of the year of manufacturer	Month of manufacture	Body of 4 numbers indicates it was manufactured 1985 thru 1995 and was the 9999th unit made. A body of 5 numbers indicates it was manufactured from 1995 thru present.	Also stands for Force 2
In this example the Force 2 was manufactured in May of 1986 and it was the 9999th unit manufactured.				

b. Units manufactured before 1995 have a verification procedure as well as a calibration procedure in the OEM service manual. Units manufactured after 1995 have only a calibration procedure.

c. It has been determined that the default auto sequence in the Fluke Biomedical 454A Electrosurgical Analyzer does not meet Valleylab's standard for testing the Force 2 generators. An auto sequence can be manually created in the 454A that will meet the Valleylab test standard of a 200 ohm load when doing RF output tests. The following tests must be entered into the auto sequence.

(1) Generator Output tests with a 300 ohm load at the following settings.

Coag	30 Watts
	120 Watts
Pure Cut	300 Watts
Blend 1	250 Watts
Blend 2	200 Watts
Blend 3	150 Watts
Microbipolar	70 Watts

(2) RF Leakage tests with a 200 ohm load, both active and dispersive leads at the following settings. Use the following identified wattage setting.

Pure Cut	35	55	75	95	115	135	155	175	195	300
Coag	55	75	105	115	120					
Microbipolar	70									

d. Do not use a disposable pencil to test the RF Leakage; this will give you false readings. Use the active accessory and activate it using the footswitch.

2-9. GENERATOR, OXYGEN, MEDICAL, POGS, 6530-01-533-4481

a. The POGS33C is the oxygen concentrator from ONSITE GAS SYSTEMS. It is capable of delivering 33 LPM while maintaining 93% - 96% oxygen. During setup it is imperative that the O_2 analyzer be calibrated correctly. While the calibration does not effect the actual production of O_2, the analyzer readings are used to alert operators in the event of low O_2 production.

(1) The generator needs to run for 45 minutes prior to calibration.

(2) During this period, install three flow meters and set them to a combined flow of 30 LPM. This allows the existing gases in the O_2 tank to be purged by the O_2 from the sieve beds.

(3) After the 45 min start-up period, factory representatives advise to first calibrate at the High range, then the Low (20.9%) and then the High again.

b. The VT PLUS gas flow analyzer may be used to calibrate the High range of the O_2 analyzer. Build a manifold to connect three flow meters to the VT PLUS using tubing, swivel connectors and zip ties.

c. The POGS33C uses a model MedAir 2000 CO (carbon monoxide) and Dew Point monitor from ENMET Corporation which is mounted internally. If there is an alarm coming from within the generator, although one should not rule out the possibility that high levels of CO are present, it is possible that the MedAir 2000 is out of calibration.

(1) The following is a list of items ENMET Corporation recommends to verify the calibration of the MedAir 2000:

Gas Regulator	037-00-500	$145
CO Cylinder	03219-020	$50
O_2 Cylinder (20.9%)	03296-209	$50
Case (Optional)	730-83-000	$20

(2) Additional information is available in the MEDAIR 2000 manual which should accompany the POGS 33C literature.

2-10. LIGHT, FIELD SURGICAL, 6530-01-343-2033

BATTERY DISCONNECTION PROCEDURES

a. While the Gettinge Castle model 2410MB field surgical light is in storage, the two 12VDC batteries need to be disconnected. The previous method for disconnecting the batteries includes removing the base cover (6 screws) and removing the battery hold down bracket (3 nuts). The batteries are then maneuvered out of position to allow access to the terminal screws. Once disconnected and tucked back into position, you must then reinstall the battery hold down bracket and base cover. While this is not a difficult exercise, it is rather cumbersome and time consuming.

b. It has been determined that there is a more practical solution which takes less time. After removing the base cover, simply disconnect the J1 connector from the RELAY PCB. This effectively removes both batteries from the circuit. There is no wrestling with bracket or batteries. A “BATTERIES DISCONNECTED” sticker can be used to secure the J1 connector in a position that will prevent damage and ensure that the next technician reconnects during set up procedures.

2-11. MONITOR, VITAL SIGNS, 6515-01-423-5796, 6515-01-423-5872, 6515-10-432-2707 AND 6515-01-432-2711

A printer door assembly problem has been identified in the models 100 series, 200 series, and Encore Propaq Vital Signs Monitors (NSNs 6515-10-432-2707, 6515-01-432-2711, 6515-01-423-5872, and 6515-01-423-5796) that allow the printer door linkage that activates the printer when the printer is closed to become disconnected under normal use. The symptoms include the printer not functioning or printer door not staying closed.

a. A washer and a retaining grommet are available that affixes to the tab of the door pin prohibiting the linkage from coming disconnected.

b. For additional information regarding this issue contact your regional Medical Maintenance Operations Division.

2-12. MONITOR, VITAL SIGNS, 6515-01-432-2707 AND 6515-01-432-2711

a. The INSERV Feature

When performing maintenance services, the INSERV feature of the Welch Allyn Propaq 206EL will not function if the accessories are connected. IAW the service manual (section 2), ensure all accessories are disconnected from the unit before using the INSERV feature.

b. Print Head Assembly Damage

Upon completion of maintenance services, and anytime before placing the monitor in storage, ensure that the recording paper is not fed through the print head or remove the paper from the recorder altogether. Leaving the paper fed through the print head during periods of storage causes damage to the print head assembly. Additionally, it is a good idea to place the monitor inside a plastic bag to protect it from the elements during both short and long-term storage. This also helps prevent the loss of any articles that may come loose inside the case.

c. Respiration Function Activation

(1) During 2001 and 2002 several Vital Signs Monitors delivered to the USAMMA did not have the respiration function activated. Welch Allyn had provided training and loaned the equipment necessary to activate the respiration function to the medical equipment repairers at Hill AFB, UT. The equipment has since been returned to the manufacturer and the USAMMA will no longer be able to activate the respiration function.

(2) The label on the left side of the equipment should provide a quick indication of whether or not your monitor has the respiration function is activated. The label displays either ECG/EKG RESP, or ECG/EKG. If it does not have RESP, it is not installed. Additionally, when you turn the unit on if you can select RESP (2nd selection from the left), it is installed.

(3) If you are assigned to an Army TOE medical unit and have a Vital Signs Monitor that does not have the respiration function activated, contact Welch Allyn Protocol and provide them with equipment's serial number. If the serial number of your monitor is on their list of monitors procured on the contract, Welch Allyn will activate the function at no cost. Contact Welch Allyn Protocol Inc's Customer Service at 8500 S.W. Creekside Place, Beaverton, OR 97008; or call them at 800-289-2500 (select option "1" twice).

2-13. MONITOR, VITAL SIGNS, 6515-01-432-2711

MAINSTREAM CO_2 SENSOR, SERVICE AND REPLACEMENT

a. The appearance of a “degraded waveform error message” indicates that the Mainstream CO_2 Sensor is bad.

b. Welch Allyn has recommended that the sensor be exercised at least every six weeks. This means that if the unit is in storage or not being used, the unit will have to be turned on and the sensor allowed to warm up. Once it is warmed up, an airway adapter will need to be attached and breathed into until the unit generates a waveform. This procedure prevents the sensors’ motor from drying up.

c. Replacement sensors are expensive. Costs identified in this publication may differ from your actual cost dependent on source, quantity, and/or inflation.

(1) A brand new sensor, (PN 008-0502-00) costs about $2200.

(2) A brand new sensor with the exchange/trade-in of a bad sensor is about $1050 (includes a one year warranty).

(3) A refurbished sensor with the exchange/trade-in of a bad sensor about $850 (includes a 90 day warranty).

(4) The part number will be generated when the user specifies what type of exchange they want. The only thing required at the time of purchase is the serial number of the bad sensor and specification of which type of exchange.

2-14. OPTICAL MICROSCOPE, 6650-00-973-6945

The Bausch and Lomb Optical Microscope, Model STEREOZOOM 4, although out of production is still being issued to field medical units. Parts can be obtained through Microscope Services, Reichert Inc., New York. Their phone number is 716-686-3166; their website is www.reichert.com.

2-15. PUMP, INFUSION, 6515-01-452-0625 AND 6515-01-486-4310

a. Battery Operation Testing When performing the battery operation test portion of the system function test for the Medsystem III 2863 and 2865 as defined on page 3-10 of the OEM service manual, Alaris Medical Systems has identified a technique that can save time and money.

(1) A one inch square piece of red (other colors not detected) silicone rubber can be used instead of a mini-set cassette filled with water. In addition to decreased costs, this also reduces the chance of the unit alarming during this test as well.

(2) Use a modified fluid side occlusion cassettes (reference appendix B of the OEM service manual, page A-8) and place a one-inch square piece of red silicone in the air in line detector. Then perform tests according IAW page 3-10 of the OEM service manual.

(3) Modification of the fluid side occlusion cassette should be done as follows. Remove the rubber boot from the plunger stem and cut away all of the tubing from the cassette. Additionally the small square rubber film on top of the cassette must be removed while the large round rubber film needs to be left in place.

(4) A 12” X 12” sheet of red rubber silicone (PN 8632K34) is available from McMaster Carr for $22.02. This can be used to make multiple one inch squares of rubber. This saves a lot of money by not having to purchase more mini-sets (PN 28125) that cost $150.00 for a box of 50 EA. McMaster Carr can be contacted at 404-346-7000 and 404-629-6500.

b. Lithium Battery Failure Indication. When the Infusion Pump is first turned on after removal from extended periods of storage it is not uncommon for the pump to indicate a lithium battery failure. With the exception of clearly visible physical damage the ensuing procedure should be followed prior replacing the lithium battery.

(1) Charge the unit for 24 hours.

(2) After the unit has charged for 24 hours, place the unit into maintenance mode and connect it to a computer with FMS software supplied by the Alaris.

(3) Re-enter the pump's specific information using the software.

(4) Remove the pump from the computer.

(5) Turn the unit off and unplug the unit from A/C.

(6) Start the unit normally. Confirm the unit's serial number is displayed on the screen with no errors. If the serial number is displayed and no errors appear, the unit still requires a software calibration.

(7) Place the unit back into maintenance mode and hook it up to the computer and follow your normal procedures for calibration and clearing the error logs.

(8) If there are errors, replace the lithium battery.

c. Alaris Medical Systems Technical Information and Software Updates. Alaris Medical Systems has published guidance in an attempt to make technical information and software updates for their models: 2850, 2863, and 2865 series infusion pump more accessible and user friendly.

(1) Their web address for technical support, information regarding service bulletins, software patches and upgrades is **http://alaris.pint.com/na/technical/bio.shtml.**

(2) To order a Technical Service Bulletin, please call ALARIS Medical Systems Customer Services at 800- 482-4822.

(3) To register for online Technical Service Bulletin Access, please call ALARIS Medical Systems Technical Support at (800) 854-7128, extension 6003.
Note: This is a list of Active Service Bulletins not already incorporated in the latest revision the Technical Service Manual part number 2863012 released Apr. 94. This is not a history of all Service Bulletins.

(4) Alaris plans to release new software during 2006 for the calibration/ Verification of the MedSystem III infusion pump. Their plan is it to make it faster and more user friendly.

d. Drive Motor Failure. The Hill Medical Maintenance Operations Division has noticed an increase in the Drive Module Kit (P/N 2860745) needing to be replaced. The cost for this part is $551.25 through Cardinal Health formerly known as Alaris. We have found that in some circumstances the problem can be fixed with a Motor Kit (P/N 2860760) at a cost of $291.90. This is a cost savings of $259.35 each.

2-16. PUMP, INFUSION, 6515-01-486-4310

ALARIS I.V. PUMP MODEL 2865B LCD DISPLAY PROBLEMS

(a) There have been some noted problems including discoloration of the pixels, inconsistent dark and light color and uneven (blotchy) polarization, and shadows of the previous screen affecting the performance and bringing into question the reliability of the Alaris I.V. Pump LCD display. The USAMMA has concluded that the problems are common to the newer Solomon LCD.

(b) Cardinal Health Alaris recognizes this problem and has agreed to perform the necessary circuit repair for any units demonstrating this problem.

(c) The following test sequence should be considered for medical equipment repairers to test Alaris Infusion Pumps. This guideline **does not** replace any manufacturer procedures for testing or servicing their product. See Appendix I of this publication.

2-17. PUMP, INTRAVENOUS INFUSION, 6515-01-498-2252

The Infusion Dynamics Intravenous Infusion Pump has an accessory called the Crystalloid and Colloid Pump Cartridge and IV Set (part number 0040-0050). Please be aware that the date on the back of the package is the date the cartridge was manufactured. There is no expiration date printed on the package. The manufacturer explained that a 3-year shelf life was specified to the Army when the infusion pump was acquired. Although it has not been tested in extreme heat, the manufacturer states that the 3-year shelf life would be shortened to 1-year shelf life if the IV Set was exposed to such conditions.

2-18. REFRIGERATOR, BLOOD, 4110-01-506-0895

The USAMMA has published procedures for performing a technical inspection/service for the ACUTEMP model: HMC-MIL-1 Blood Refrigerator Unit. See Appendix J of this publication for additional information.

2-19. STERILIZER, STEAM, 6530-01-431-6564 AND 6530-01-442-8720

SOFTWARE UPGRADE

a. A software update allowing the repairer to calibrate the unit from the parameters menu is available for Harvey MC10 Steam Sterilizers that were built prior to the year 2000. Although the update is not required, it significantly reduces the amount of calibration time by precluding the requirement for the repairer to open the case and go to the motherboard.

b. Some units may have already been updated. Verification that your unit has the updated software can be done as follows:

(1) Press and hold CONTROLS OFF, then press and hold PROGRAM SET.

(2) Release CONTROLS OFF, wait one second and release the PROGRAM SET button. The unit should display the LOG in the upper left corner of the display.

(3) Step through the selections by pressing PROGRAM SET. Use the UP ARROW or DOWN ARROW to change the selection.

(4) As you are scrolling through, the last parameter should be CALIBRATE if you have the updated software. If there is no CALIBRATE parameter, you have an old software version.

c. The software update consists of an EEPROM (P/N SC1203X1) available from Barnstead International/Harvey; phone: 1-800-553-0039. The cost is $35.

2-20. TABLE, OPERATING, FIELD, 6530-01-321-5592

a. Electrical Safety testing of the surgical light (NSN 6240-01-455-7873) has disclosed that an unacceptable leakage current level exists in some of the lights that are part of the field operating table. Additional information was provided by RTS-Medical personnel at Fort McCoy, WI, that relates to the JT-101 and YH75A power supply PCBs.

b. If your FST OR table surgical lights have an electrical leakage problem (>300 UA) follow these instructions.

Step 1: Remove the plastic terminal cover at the bottom of the lamp column and make a small mark with a permanent marker on the red lead to the power supply PCB that is connected to the black lead of the incoming power cord. Continue with the disassembly of the lamp by removing the base joint assembly and middle knuckle of the lamp. Remove the two screws securing the PCB heat sink about halfway up the lamp column. Undo the wire nuts at both ends and slide the PCB out the bottom of the column.

Step 2: Identify the board you are modifying and locate the hot lead.

(a) If you have an YH75A board, its number will be found on the right edge of the component side of the board. The YH75A hot lead is located on the opposite side from the part number and heat sink ground lug viewed from the component side. Trace the lead from this wire and it goes to the line fuse.

(b) A JT-101 board will be labeled on the “run” side, in the upper middle. The JT-101 board is laid out with the hot lead on the same side as the heat sink ground lug, going to a fusible link, (the very thin wire overlaying the resistor symbol silk screened on the component side). Don’t be concerned if the black mark you made in step one seems to be reversed. Many of these boards were connected backwards during assembly. The fuse should always be connected to the incoming, (hot) side. If your connection is reversed, correct it now by gently scraping off the small black mark and applying a larger one to the hot lead. You may also mark the other red wire (neutral) with a white marker. This precludes any need to de-solder and replace the existing red wires.

Step 3: “Float” or electrically disconnect the ground pad of the PCB. Unscrew the lug from the heat sink. Use a small diagonal cutter and snip off the lug flush with the surface of the PCB. Snip off the green ground wire where it enters the PCB. (No soldering iron needed for this step.)

Step 4: Connect the isolated ground lug to the neutral lead. This step diverts risk current to neutral. Some risk current is induced due to the proximity of the runs on this board. The balance probably comes through the two filter capacitors which terminate on the ground pad. These caps are present on both power supply modules. They are thin film ceramic caps with high dielectric ratings (350 V to 3.3 kV on the samples encountered).

Step 5: Acquire a 28 AWG stranded signal wire, strip it and pull out a single strand. This should measure about .010 inch in diameter. For comparison, the fusible link wire found on the JT-101 board measures about .007-inch. Solder this wire between the ground pad and the neutral pad. Use of 60/40 solder with rosin flux will facilitate this operation and probably eliminate the need for additional solder. This thin wire will carry risk current and protect the board if an equipment malfunction occurs.

Step 6: Place a ring terminal on the line cord ground lead and connect it to the chassis with a 6-32 screw and nut. Drill a hole between and slightly below the screw holes for the line cord terminal cover. Face the screw head out and the cover should fit over it during reassembly of the lamp.

Step 7: Reassemble and safety test the lamp using normal and reverse polarity. You may also open and close the ground switch as part of the test. This should bring the electrical leakage within (<300 uA) acceptable limits.

2-21. TABLE, OPERATING, HOSPITAL (FIELD), 6530-01-353-9883

The field operating table, model 2080, manufactured by Steris Corporation, LIN T00029, is supplied with a number of accessory components. The list of accessories supplied with the table is taken from the Medical Procurement Item Description (MPID). Appendix K shows a picture for each part. For ease of inventory and operational readiness, you should make a copy of this list and include it with the manufacturer's literature.

2-22. VENTILATOR, 6530-01-464-0267

a. Total Flow Backup. It has been discovered that the 754M ventilator sometimes will fail to generate a "Total Flow Backup" error/alarm although the flow is obstructed.

(1) The black bushing (PN 340-0019-00) between the compressor air inlet assembly and the compressor barb eventually stretches and develops a leak allowing the compressor to pull air from inside the ventilator. When this occurs, the ventilator will not to generate a "Total Flow Backup" alarm even though partially occluding the compressor inlet fitting

(2) Follow the steps below for generating the "Total Flow Backup" alarm:

(a) Ensure that the settings are correct.
(b) Unscrew the 22mm gas outlet adapter from the manifold assembly.
(c) Remove the 400m transducer screen from the manifold assembly.
(d) Let the ventilator cycle 4 to 5 breaths.
(e) The "Total Flow Backup" alarm should occur.
(f) Press the Mute/Cancel push-button. The alarm LED and audible alarm should turn off and the AMC message should remain.

(3) If the preceding test failed to produce a "Total Flow Backup" error/alarm, verify that the black bushing between the compressor air inlet assembly and the compressor barb is functioning properly.

b. Incorrect Batter Charging Voltage

During routine checks of the 754M Ventilator, if the battery charging voltage is below the tolerance voltage of 12 volts DC, check the output of U1 on the motor drive circuit board. The part number for the motor drive board is 702-0754-05. The part number for U1 is 055-3578-00.

c. Air intake manifold servicing/cleaning for the 754M.

(1) While performing PMCS on the 754M Impact Ventilator, if there is a failure to produce sufficient air flow (6.01 lpm) on either the O_2 or air regulated by the manual valve control test fixture, it can be traced back to the O_2/air intake manifold.

(2) To correct this problem, remove the intake manifold from the ventilator. Disassemble the variable orifice valves from both O_2 and regulated air sections. After locating and removing the 400 micro filter screen and o-ring, submerge remaining aluminum blocks in 70% alcohol solution. Use canned air to blow dry block and orifices. Swab a few drops of alcohol into the flow ports of the four variable orifice valves and use canned air to blow dry. Reassemble manifold and perform an air flow test. The 400 micron screen can also be ultrasonically cleaned or canned air may be used to clean as needed.

(3) If there is a failure to produce sufficient air flow on either the O_2 or Air outputs, and you suspect the problem is due to dirty 500 micron screen transducers you should contact your supporting Medical Maintenance Division for repair.

d. HEPA Filtration and Premature Compressor Failure

The 754M ventilator air entrainment port does not come standard with a HEPA filter installed. When the ventilator is operated in a clean environment like a hospital, a HEPA filter covering the air-entrainment port is generally not needed. However, it is recommended that when the ventilator is operated in an environment exposed to higher than normal levels of airborne contaminants that a HEPA filter be installed. See Appendix L for additional information concerning HEPA Filtration.

2-23. X-RAY APPARATUS, DENTAL, HANDHELD, 6525-01-425-5216

a. A problem has been identified with the Dent X, model HDX. When trying to make an exposure with the unit yoke exposure switch, the unit does not release an exposure. When using the unit's hand switch the unit makes an exposure. The problem has been identified with an internal connector (brown and yellow wires). It falls off easily when removing the control panel.

b. When you service the unit and take the control panel off, ensure that you tie wrap the three bundles of wires that are coming out of the power supply assembly into the control panel. Securing the wires will prevent the connector from falling off and preventing proper system operation.

2-24. X-RAY APPARATUS, RADIOGRAPHIC, MED, 6525-01-384-9296

Textbook Diagnosis of Picker VP4 Error Code "E300"

(1) A VP-4 was indicating a E300 error code, which indicated no filament current. The Trouble shooting Flow chart the technician is instructed to replace the "CU PCB", however after the CU PCB was installed the fault condition was still not corrected.

(2) Troubleshooting action indicated open filaments in the tube or a poor connection on the cathode cable. The filaments were checked for proper impedance and the connection was checked. Both tests found no fault. After the recommended checks were made, the filament troubleshooting flow chart suggested that the computer board P/N 1174-21 was bad. The board was replaced; however, this did not correct the malfunction. After a check of the schematics, it was noticed that there were two fuses on the "Power on off PCB" that affected the "Filament Drive PCB" (F2 = 2.5A 250V which Supplies 55VAC to Filament Drive Board) & (F5 = 1A 250V which Supplies 19 VAC to the 15-Volt Power Supplies on the Power Supply Board which supplies the Filament Drive Board) one of these fuses was found to be open.

(3) The fuse was replaced and the fault was corrected.

2-25. X-RAY APP RAD/FLUOR, C-ARM, 6525-01-452-0956

During transportation the BV-300 C-Arm is prone to damage due to improper use of the rear wheel steering. The rear wheel steering increases the mobility of unit during use, but can be hazardous during transportation. Remember to keep the rear wheels facing forward and steer with the front wheel. Slight adjustments of the rear wheel control handle can cause drastic directional changes and loss of control resulting in damage to the machine or personal injury to people near the machine. Later models of the Philips C-Arm do not have rear wheel steering as an option.

CHAPTER 3. TMDE UTILIZATION INFORMATION

3-1. ANALYZER, GAS, ANESTHETIC, 6630-01-487-6987

a. The accessory kit provided with the RIKEN meters initially may not have included the hose assembly that connects between the fresh gas outlet of the Narkomed-M Anesthesia Apparatus and the inlet port of the meter itself. To make this hose assembly, use a fresh gas hose (Draeger PN: 4108577). Glue the end that connects to the absorber assembly into the small end of the "tee" that comes with the RIKEN meter kit. Attach the white tubing that goes to the RIKEN inlet port to the barb on the "tee."

b. The equipment manufacturer does not have a replacement part number for the 13/16" outside diameter (od) tubing that goes from the high pressure regulator to the cylinder gauge inside the anesthesia unit. For repairs, this must be purchased locally and cut to fit.

3-2. AUTO SEQUENCES, FLUKE BIOMEDICAL/DNI TEST EQUIPMENT

a. There have been several instances noted in which TMDE that comes with defaulted auto sequence options are not consistent with the medical equipment OEM's test procedure and/or standard.

b. Repairers should print a copy of the auto sequence and verify all test procedures (settings are appropriate and the tolerance is correct) required to properly test the item of equipment IAW the OEM standards are included prior to testing an item of medical equipment. If you discover the auto sequence is incorrect, you may reprogram the auto sequence manually to comply with OEM standards.

c. The most notable inconsistencies are when testing the Valleylab Force 2 Electrosurgical Unit in which case the RF leakage tests set in the TMDE auto sequence uses an open load and should use a 200 ohm load; and the Lifepak 10 Defibrillators in which case the tolerance set in the TMDE auto sequence is 15 percent and should be 7 percent.

3-3. CALIBRATOR – ANALYZER (VT-PLUS), 6515-01-491-6615

a. The 754M Ventilator was designed to only communicate with the RT200 Calibration Analyzer. The Fluke Biomedical VT-Plus, with the ability to emulate the RT-200, can also be used to calibrate and service the 754M ventilator.

b. Although previous versions of firmware allowed the ability to calibrate the 754M, repairers were often confused because the screen would request "RT-200 specific" input during the calibration procedure.

c. Recent software revisions for the VT-Plus and VT-Plus-HF are available to assist repairers with servicing the 754M ventilator with minimal perplexity. The newer revisions provide true "Emulation" thus the software recognizes the TMDE as a RT-200 and goes directly into the calibration mode. The software revision number can be found on the warm-up screen, when the unit is first turned on.

(1) For the VT-Plus, Software Revision Number 1.07.03 or higher is recommended.
(2) For the VT-Plus-HF, Software Revision Number 1.08.06 or higher is recommended.
(3) Contact your local TMDE Support Center or MSD TRACY California for upgrades.

3-4. METER X-RAY CALIBRATION, 6525-01-502-0504

a. There have been some concerns brought up recently that there is opportunity for inaccurate readings when measuring KVp on the Min-Xray HF 120 if the Unfors external detector is positioned incorrectly.

b. To ensure accuracy when using the UNFORS 710L to measure kVp on the MinXray HF 120 the following steps should be taken:

(1) The Unfors external detector should be placed approximately 45cm (18”) from the x-ray tubes focal spot and as close as possible to the center of the field. The built in tape measure on the collimator is pre-set to the tube-head’s focal spot.

(2) Ensure the X-ray is level and the Unfors external detector is centered and perpendicular to the X-Ray beam. The detector should be positioned perpendicular to the tube axis to minimize the heel affect. See Figure 3-1.

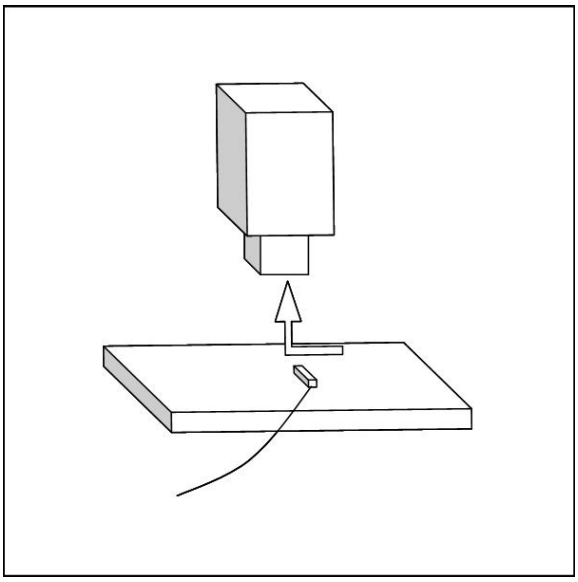


Figure 3-1

(3) Note On Calibration and the Heel Affect: An x-ray beam's intensity is not uniform throughout its entirety. X-radiation is emitted from the tubes anode, or focal spot, in a conical shape. Measurements show that the beams intensity in the direction of the anode is lower than the intensity in the direction of the cathode. It is important that the Unfors external detector is centered and perpendicular to the X-Ray beam. See Figure 3-2 for picture illustrating the Heel Affect.

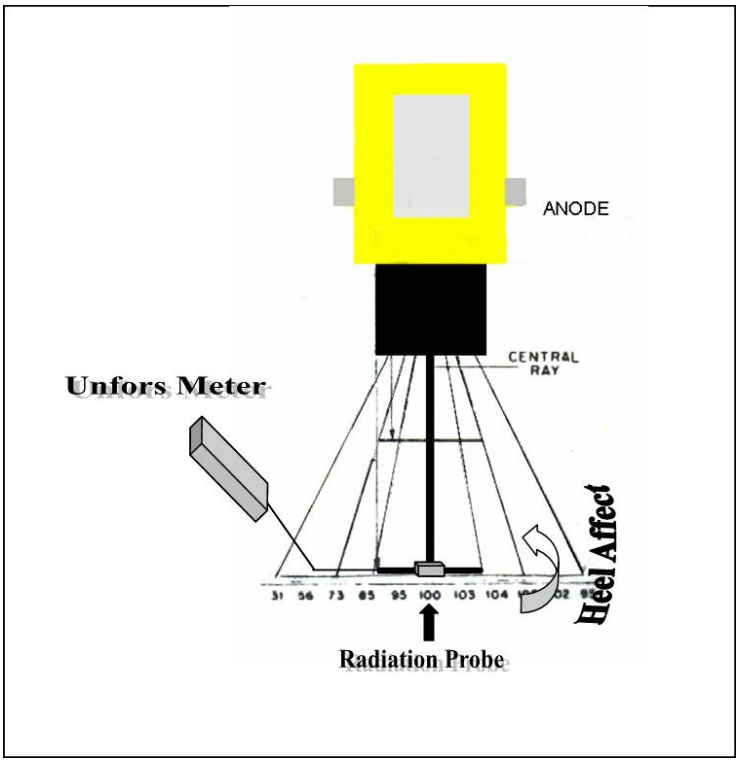


Figure 3-2

3-5. MULTIMETER, RADIOGRAPHIC, PMX-III, 6525-01-387-0212

a. Software Improvements Version 5.2 System provides Improved Continuous Mode measuring.

(1) The new Software Version 5.2 for the PMX-III enables the repairer to select any parameter (kVp, MA, Time, MAS) to be displayed during an exposure using the Continuous Mode.

(a) The parameter to be displayed is preselected by using the Parameter key. This new capability enables the repairer to see the real-time values of dose and dose rate during the exposure. Previous Software versions involved limitations in the Continuous Mode allowing only visibility of kVp until exposure completion at which time all measured values could then be viewed by scrolling through the display.

(b) Manual reset for the electrometer is available also in the MULTIMETER mode. The function key F3 works as RESET key in the MULTIMETER mode in the following cases. The normal function is the SETUP table #1 is loaded when the F3 is pressed. However, when dose or dose rate is selected by means of the PARAMETER key this function is overridden and a reset of the electrometer is preformed. If no SETUP table is programmed to the F3 key, it works as RESET key in all situations both in the MULTIMETER and DOSIMETER mode.

APPENDIX A. EXTERNAL STANDARD OPERATING PROCEDURES MEDICAL MAINTENANCE OPERATIONS DIVISION HILL AFB, UT

U.S. Army Medical Materiel Agency
Maintenance Engineering & Operations Directorate
Medical Maintenance Operations Division, Hill AFB Utah
External Standing Operating Procedures

MCMR-MMO-SMO March 2006

1. Purpose

To provide guidance to units and organizations requesting services from the U.S. Army Medical Materiel Agency (USAMMA) Medical Maintenance Operations Division, (MMOD-UT) at Hill Air Force Base Utah.

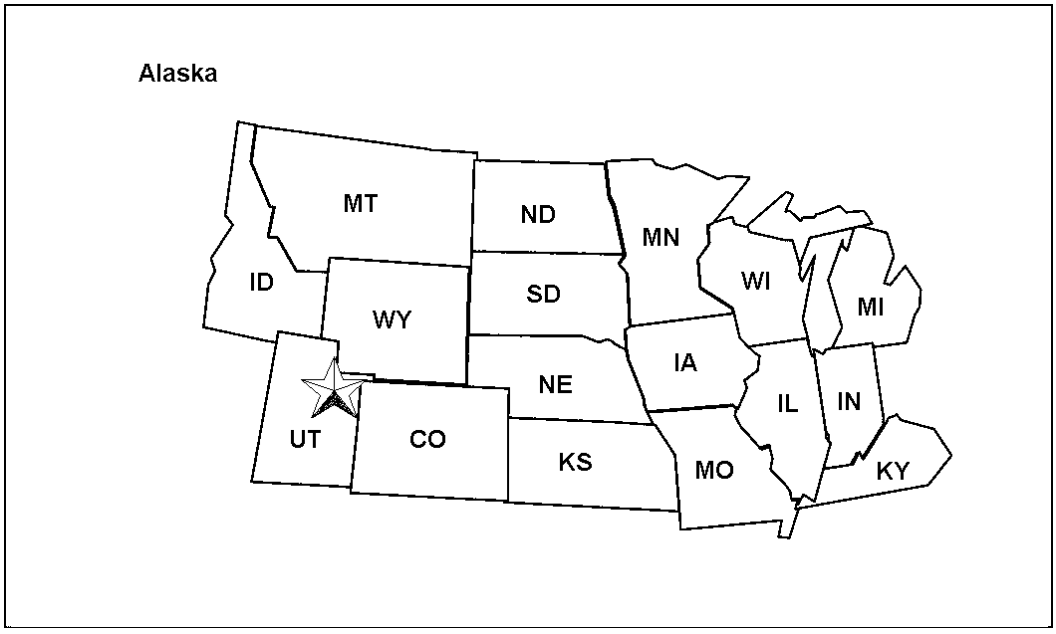
2. Scope

These procedures are applicable to all units and activities requesting support.

3. Mission

The USAMMA Medical Maintenance Operations Division provides depot-level services and functions in support of all field TOE medical equipment (except x-ray). We have the capability to refurbish and rebuild field medical equipment to like-new condition, provide repair and return services, administer a Medical Standby Equipment Program (MEDSTEP) and provide on-site support.

3.1. Hill serves as the regional manager, and your single point of contact to address all of your TOE medical maintenance requirements. The map below depicts Hill's Region.



4. Hours of Operation

Our duty hours for the Maintenance Division are 0500 to 1630 (MT), Monday through Friday. If you need assistance or service for field TOE medical equipment, please contact the following personnel:

Chief	801-586-4947	DSN 586-4947
Shop Supervisor	801-586-4948	DSN 586-4948
Production Control	801-586-4949	DSN 586-4949
Fax	801-586-5058	DSN 586-5058

Website: http://www.usamma.army.mil/maintenance/operations_divisions.cfm

5. Services Available

5.1. All maintenance significant medical materiel except high capacity x-rays and optical equipment

5.2. On-site technical assistance (request must be made to HQ, USAMMA)

5.3. Telephonic technical assistance

5.4. Medical Equipment Standby Program

5.5. Repair of TO&E medical equipment

5.6. Parts support to AMEDD Limited Support Items (ALSI)

6. Requesting Services

6.1. Prior to sending any nonstandard medical equipment, call DSN 586-4949/4947 to ensure that the items can be supported at this division.

6.2. When shipping equipment for repair or service, please use the following address:

U.S. Army Medical Materiel Agency
6149 Wardleigh Road
Bldg. 1160, Bay 1
Hill AFB, UT 84056-5848
DODAAC: W81PYK

6.3. The owning or supporting unit is responsible for ensuring that the equipment is cleaned and disinfected prior to shipping the item to our Division for service.

6.3.1. Contaminated or unsanitary equipment will be returned to from wherever it came with no maintenance action taken.

6.4. Each equipment item must be shipped with the following:

- All accessories needed to operate, test and/or calibrate the unit
- manufacturer's service literature for non-standard equipment
- DA Form 2409 (for manual systems), or a work history printout (for automated systems)
- DA Form 2407 containing the following:
  - unit name and address
  - DODAAC and UIC
  - point of contact
  - commercial/fax telephone numbers
  - priority
  - brief description of the problem or requested service (i.e., repair and return)

Note: We request that you contact us prior to shipping non-standard equipment.

6.5. Upon receipt of your equipment, an automated work order will be generated and faxed to your point of contact. Please reference our work order number regarding all inquiries.

6.6. When services are completed, the equipment will be shipped to your return address and POC. A copy of our closed automated work order will be returned with the equipment for updating your unit's records.

6.7. Equipment that is not economically repairable will be condition coded in accordance with applicable regulations. The owning or supporting unit will be notified for disposition instructions. Equipment items will be returned to your unit or disposed of locally, in which case your unit will be provided a copy of the closed automated work order and a signed copy of the DD Form 1348 for your records.

6.8. Repairs or services that will exceed the One Time Expenditures Limit (OTEL) or Maximum Expenditure Limit (MEL) will require a waiver approved by your organization commander or designee prior to the accomplishment of any repairs or services.

6.9. All units, organizations, facilities or agencies other than active army (P84 and medical P1 funds) are required to reimburse USAMMA for all services. Army National Guard and Army Reserve units are not required to submit funding citations as their respective headquarters provide funds on an annual basis to cover their medical equipment. Funding documentation from other reimbursable customers must include the following:

- Document number to include owning DODAAC, UIC, and address
- Funding citation
- Authorized amount (amount authorized for service)
- Point of contact and telephone number
- Nomenclature of item
- National stock number, management control number, or non-standard number
- Model number and quantity sent with serial numbers
- Any accessories, maintenance manuals, or other materiel that may be required to perform service on the equipment
- Identification of all accessories

6.10. On-site maintenance support for field TOE equipment is available from our Division and should be coordinated with us first to ensure availability of manpower and resources. All requests for on-site maintenance support must be through appropriate command channels to

the Commander, U.S. Army Medical Materiel Agency, ATTN: MCMR-MMO-SM, 1423 Sultan Drive, Fort Detrick, MD 21702-5001. Requests must include name and location of the requesting unit and work site, specific requirement to include estimated man-hours, recommendation, and priority from local command.

6.11. On-Site Sustainment Maintenance support for National Guard TO&E medical equipment is available from the Utah Maintenance Division on an annual basis for the states of UT, ID, KS, MO, NE, IA, MN, WI, WY, CO, MT, AK, ND, SD, MI, IN, IL, and KY. Personnel from our Division will be contacting all USANG TO&E units with in these states annually to arrange for specific dates and times for providing service. For this program to be successful, it is essential that our records reflect the most current information for each unit's point of contact, phone number, e-mail address, unit name, location and UIC. If any of this information has recently changed or your unit has not been contacted by our Division, please contact us at 801-586-4948/4937 or DSN 586-4948/4947.

7. Repair Parts for Field TOE Equipment

7.1. Repair parts to support equipment for which the manufacturer or other sources will no longer supply parts may be requested from our Medical Maintenance Division, commercial 801-586-4950/4948. All requests will require your unit name, address, DODAAC, point of contact, commercial/fax telephone numbers, the NSN of the end item and the part number(s) of the items requested.

7.2. The USAMMA is in the process of establishing a Centralized Repair Parts Program at the Utah Medical Maintenance Division for all TO&E Medical Equipment. Depending on the availability of funding, we may be able to assist you with your repair parts requirements. Please call one of our Supply Technicians at Comm: 801-586-4950/5962 or DSN 586-4950/5962 and they will explain how the process works and what information you will need to provide.

8. Medical Standby Equipment Program (MEDSTEP)

8.1. MEDSTEP assets will not be used to fill equipment shortages, replace uneconomically repairable items or expand operational missions.

8.2. MEDSTEP assets will be requested through our Medical Maintenance Division at commercial 801-586-4949. All requests will require your unit name, address, DODAAC, point of contact, commercial/fax telephone numbers, and a brief description of your requirement.

8.3. The requesting unit is responsible for the care and maintenance of the MEDSTEP item and to ensure the item is cleaned and properly packed prior to returning the item to our Division.

9. Cannibalization Point

The MMOD-UT maintains unserviceable assets of selected medical equipment for cannibalization. Authorized customers may request parts from cannibalization for mission critical medical equipment when parts are not available from any other source.

Chief, Medical Maintenance Operations Division
USAMMA

APPENDIX B. EXTERNAL STANDARD OPERATING PROCEDURES MEDICAL MAINTENANCE OPERATIONS DIVISION, TOBYHANNA, PA

U.S. Army Medical Materiel Agency
Force Sustainment Directorate
Medical Maintenance Operations Division, Tobyhanna, PA
External Standing Operating Procedures

MRMC-MMO-SMT March 2006

1. Purpose

To provide guidance to units and organizations requesting services from the U.S. Army Medical Materiel Agency (USAMMA) Medical Maintenance Operations Division, Tobyhanna (MMOD-PA) at Tobyhanna Army Depot, Tobyhanna PA.

2. Scope

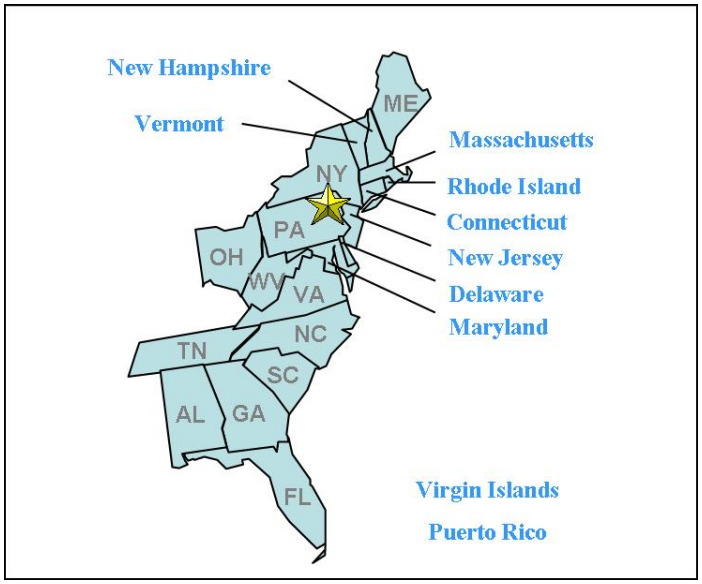
These procedures are applicable to all units and activities requesting support.

3. Mission

The USAMMA Medical Maintenance Operations Division, Tobyhanna, PA, provides depot-level services and functions in support of TDA and TOE medical equipment. In addition to providing outstanding maintenance support for a wide variety of the Army's medical equipment, we operate the USAMMA's Center of Excellence for the AMEDD's Diagnostic Imaging Acceptance Program; the physical examination equipment refurbishment and loan program; the Army's Dental Handpiece Rebuild program; the audiometric equipment calibration program; Optical Equipment maintenance; TOE Laboratory Equipment, and PACS acceptance testing and centralized monitor support.

3.1. Tobyhanna serves as the regional manager, and your single point of contact to assist you with all of your medical maintenance support requirements.

3.2. The map below depicts Tobyhanna's Region.



4. Hours of Operation

Normal duty hours are 0630 to 1730 (ET) Monday through Friday. If you need assistance or service please contact the following personnel:

Chief	570-895-7744	DSN 795-7744
Shop Supervisor	570-895-7134	DSN 795-7134
Production Control	570-895-6396	DSN 795-6396
Work Order Status	570-895-7843	DSN 795-7843
Supply	570-895-7614	DSN 795-7614
Fax	570-895-7699	DSN 795-7699

Website:
http://www.usamma.army.mil/maintenance/operations_divisions.cfm

5. Services Available

The Medical Maintenance Operations Division, PA, has the capability to refurbish and rebuild medical equipment to like-new condition, provide repair and return services, administer a Medical Equipment Standby Equipment Program (MEDSTEP), and provide on-site support. Tobyhanna is also one of three Regional Managers for the AMEDD Maintenance Sustainment Program.

5.1. TO&E Equipment - All TO&E equipment, to include high capacity x-rays and imaging. (All versions of Orex, Compano, and ACR 2000 CR Readers).

5.2. TDA Equipment Items – Our TDA equipment maintenance support includes Optical Equipment, Audiometric Equipment, and Dental Handpieces. Tables 1, 2, and 3 list the respective TDA equipment items that are routinely serviced at Tobyhanna. Equipment items not listed in “services available” or on the USAMMA Maintenance Operations Divisions’ website should not be sent without prior coordination.

TABLE 1. TDA OPTICAL EQUIPMENT

MICROSCOPES	PHOROPTERS	LENSOMETERS
Nikon – Labophot 1 & 2 , Eclipse 50i	All Marco	Marco 101
Olympus – BH series & BX 40	Leica 11625	Leica 21 65 70
All Cambridge	All American Optical	Nikon – EL-7S
All Leica	All Reichert	Reichert – ML1
All AO		

SLIT LAMP	VISION TESTER
TOPCON – SL30, SL6E & SL-D7	AFVT 2300

Table 2. TDA AUDIOMETRIC EQUIPMENT

All Tracor/Tremetrics - NOTE: RA 400A supportability is limited.
All Maico
Beltone – 120
Grason Stadler (Limited Supportability) – GSI 16, 27, 27A, 28, 33, and 38
Grason Stadler – Tympstar, GSI 61, GSI 17

TABLE 3. DENTAL HANDPIECES
Kavo 632, 635, 642, and 643
Lares 557-757
Mid West, XGT
Mid West, Shorty 1 and 2 Speed (Slow Speed)
Mid West, Tradition (High Speed)
Mid West, Shorty Nose Cone (Fits on Shorty 2 Speed)
Mid West, Prophy Angle
Mid West, Quiet Air
Mid West, 8000 I
Star, 430
Star, Titan Scaler

5.3. Assistance Visits: On-site assistance visits will be conducted annually by Tracy Division for National Guard supported units within our region. This will be accomplished by division maintenance teams or arranged maintenance support with other maintenance activities in the state. The Chief/Shop Supervisor, Tracy Division, will coordinate scheduling of visits. All other assistance visits to include On-Site technical assistance, training and X-ray acceptance inspection requests will be coordinate through HQ, USAMMA. Please contact the Chief, Medical Maintenance Division prior to submitting any request for assistance. Any unit desiring an on-site assistance visit with the exception of National Guard units will be required to submit a memorandum to:

US Army Medical Materiel Agency
ATTN: MCMR-MMO-SM
1423 Sultan Drive, Suite 100
Fort Detrick MD 21702-5001

5.3.1 Please contact the Chief, Maintenance Operations Division at 301-619-4365 for further assistance.

5.4. Telephonic technical assistance - Technical experts are available to share their knowledge and experience. They will help diagnose and troubleshoot equipment failures.

5.5. Military Entrance Processing Station (MEPS) Direct Exchange Program - The Medical Maintenance Operations Division, Tobyhanna, provides an equipment direct exchange program for the MEPS. When a piece of equipment fails, the MEPS call us for an exchange replacement. The replacement equipment is sent out immediately to the requesting unit. The unit then sends their broken equipment to us for repair and placement back into the exchange program. This process alleviates the need for any direct MEDDAC/MEDCEN involvement. A listing of equipment in the direct exchange program is shown in Table 4.

TABLE 4. MEPS EQUIPMENT

NSN	NOMENCLATURE	MODEL	MFR
6515-01-C01-0001	Audiometer	HT Wizard	Tremetrics
6515-01-X18-2319	Bio-Acoustic Sim	Oscar VII	Quest
6640-01-C03-0017	Centrifuge	225A	Fisher
6515-01-C05-0004	EKG	LE11	Burdick
6515-01-C05-0005	EKG	Atria 3000	Burdick
6540-01-452-8207	Color Vision Tester	Optec 900	Stereo Optical
6530-01-429-4649	Exam Light	48600	Welch Allyn
6650-01-207-0829	Microscope	Labophot	Nikon
6650-01-325-3747	Microscope	Various	Amer Optical
6670-01-C19-0036	Digital Scale	WB-100A	Tanita
6670-01-C19-0032	Digital Scale	BWB-627A	Tanita
6640-01-375-9031	Vision Tester	2300A & 2300	Stereo Optical
6515-01-C13-0001	Vital Signs Monitor	Spot 4200B	Welch Allyn

Note: The MMOD-PA provides a Direct Exchange Program for selected equipment. To qualify for a DX, the equipment must be the same make and model, and must be repairable. No direct exchange will be complete until both parties are satisfied with the equipment they received.

5.6. Medical Equipment Standby Program (MEDSTEP) - This program is available to provide temporary loaner equipment during long repairs or temporary mission support. MEDSTEP assets may only be utilized to provide temporary replacement for equipment being serviced at the MMOD-PA. Our MEDSTEP assets include a variety of end items, components, or assemblies. A list of MEDSTEP assets available at the MMOD-PA is published periodically in the SB 8-75 series bulletins. Contact our Supply Section to request MEDSTEP assets.

Note: MEDSTEP equipment may not be used to fill equipment shortages or expand operational missions. Exceptions require command approval. When the owner's original equipment is received back, the MEDSTEP item, to include all accessories, must be returned to the MMOD-PA. Reimbursable customers that use MEDSTEP must provide funds as necessary to restore the MEDSTEP item back to serviceable condition.

5.7. AMEDD Sustainment Maintenance Program - The program is an OTSG/MEDCOM initiative with the USAMMA Force Sustainment Directorate (FSD) as the action office. The USAMMA has operational responsibility for the program and acts as the focal point for all MTOE medical equipment maintenance. This program is designed to provide technical assistance visits to supported activities without organic maintenance capability, or when repairs are beyond their capabilities, manpower limits, or technical expertise. The overall objectives of the AMEDD Maintenance Sustainment Program are to:

a. Increase readiness by ensuring MTOE medical equipment is mission capable.
b. Provide visibility of medical equipment status for the Total Army.
c. Increase flexibility to cross-level DS/GS sustainment maintenance workload.
d. Establish sustainment training for medical equipment repairers.
e. Provide a maintenance structure that will accommodate any medical maintenance related initiative.
f. Increase maintenance capability by ensuring efficient use of all maintenance resources.
g. Tobyhanna provides Sustainment Maintenance Support to the following areas:

Alabama	Maine	North Carolina	Tennessee
Connecticut	Massachusetts	Ohio	Virginia
Delaware	Maryland	Pennsylvania	Virgin Islands
District of Columbia	New Hampshire	Rhode Island	Vermont
Florida	New Jersey	Puerto Rico	West Virginia
Georgia	New York	South Carolina	

5.8. X-ray Acceptance Procedures - Upon completion of an x-ray system installation, the contractor is required to notify the Defense Support Center, Philadelphia (DSCP) that the system is ready for an acceptance inspection. Notification by the contractor should be made in writing to:

DSCP-MX
PO Box 8419
2800 S. 20th Street
Philadelphia PA 19101-8419

Note: Acceptance inspections cannot be performed by this activity without the approval of the manufacturer and notification from DSCP.

a. Once notification has been received by DSCP that the unit is ready for inspection, DSCP will in turn notify the appropriate service (U.S. Army, U.S. Air Force or Navy) representative. The U.S. Army Representative at the USAMMA/ Tobyhanna Army Depot will then contact the facility and notify them that the Government has received an official notice that a Radiology System has been installed and that the facility has 30 working days to complete the inspection. If the facility cannot perform the required inspection they will need to reply back to the representative (USAMMA) that they need assistance to complete the testing and indicate the reasons. If the system passes the inspection then the start date of the warranty will be the date of the original notice sent to DSCP. If the system fails the inspection then the warranty start date will be the date when it passes the re-inspection. If the inspection is not completed within this time frame, then the Government automatically accepts the system under default and the warranty start date is the date of the original notice sent to DSCP.

b. Upon completion of the acceptance testing, the report must be forwarded to:

DSCP-MX,
PO Box 8419
2800 S. 20th Street
Philadelphia PA 19101-8419

c. For the U.S. Army, a copy of the report, along with a completed copy of the form FDA 2579 must be sent to:

Medical Maintenance Ops Division
ATTN: MCMR-MMO-SMT (X-ray Acceptance Testing)
Tobyhanna Army Depot
11 Hap Arnold Blvd.
Tobyhanna PA 18466-5063

d. Applying for a Variance - Variances to the inspection time frame cannot be negotiated locally. Requests for variances must be made as early as possible and directed to DSCP-MX prior to the expiration of the established 30 working day inspection period. Requests must state the reason(s) for not complying within the stipulated time frame and the actions, which are desired or required, e.g., time extension.

Note: It should be noted that the local contractor's representative might not be aware of the contract requirements and inspection testing procedures. Therefore, it is to the advantage of any activity that will require an acceptance inspection to involve the local clinical engineering activity in new x-ray system installations. Unresolved local problems regarding the installation or inspection of an x-ray system should be directed to DSCP-MX, for resolution by the responsible contracting officer.

5.9. Cannibalization Point - The MMOD-PA maintains unserviceable assets of selected medical equipment for cannibalization. Authorized customers may request parts from cannibalization for mission critical medical equipment when parts are not available from any other source.

6. Requesting Services

All units, organizations, facilities or agencies other than active army (P84 and medical P1 funds) are required to reimburse USAMMA for all services. Army National Guard and Army Reserve units are not required to submit funding citations as their respective headquarters provide funds on an annual basis to cover their medical equipment. Funding documentation from other reimbursable customers must include the following:

a. Document number to include owning DODAAC, UIC and address
b. Funding citation.
c. Authorized amount (amount authorized for service).
d. Point of contact and telephone number.
e. Nomenclature of item.
f. National stock number, management control number, or non-standard number.
g. Model number and quantity sent with serial numbers.
h. Any accessories, maintenance manuals, or other materiel that may be required to perform service on the equipment.
i. Identification of all accessories.

6.1. Preparing the Equipment - Prior to sending any nonstandard medical equipment not listed in the table above, call DSN 795-6396 to ensure that the items can be supported at this Division.

a. Infection Control - is primarily the responsibility of the activity requesting equipment repair or maintenance service. Equipment must be cleaned and disinfected to the maximum extent possible prior to shipment to or receipt by this maintenance division. We retain the right to refuse equipment that has not been properly cleaned and disinfected.

b. Hazardous Waste - Equipment, which contains hazardous waste, must be disposed of in accordance with federal and local laws. It is the responsibility of the activity requesting service to dispose of hazardous waste prior to shipment to or acceptance by this Division.

c. Packing/Transport - Equipment should be packed to prevent further damage during shipment/transport.

Note: Each individual item of equipment excluding dental handpieces will have its own DA Form 2407 (Work Order Request).

6.2. Preparing the Paper Work - All customers may request maintenance services by submitting either a DA Form 2407 (or automated equivalent). Requests for high priority work (Priority 03) must be authenticated by the Unit Commander or a person designated by the Unit Commander. Work requests submitted without authentication for higher priority will be handled as routine.

6.3. Sending/Delivering the Equipment/Paperwork - Items can be mailed, shipped, or delivered to the address listed below. When equipment is received at the maintenance division, the following items will be checked:

a. Shipping document (If item is received via mail, UPS, or FedEx)
b. Damage from shipping or handling.
c. Cleanliness.
d. Properly completed DA Form 2407 or equivalent.
e. Equipment accessories.

Note: Accessories sent along with equipment should be annotated on the work request. Failure to complete paper work or prepare equipment properly may cause a delay in service. When shipping or delivering equipment for repair, please ensure the manufacturer's literature (operation & service) is included. If literature is unavailable, every effort should be made to obtain it prior to shipment of the equipment.

f. When shipping equipment for servicing please use the following address:

US Army Medical Materiel Agency
Medical Maintenance Operations Division – PA
Warehouse 4, Bay 1
Tobyhanna Army Depot
Tobyhanna PA 18466-5063
DODAAC: W25AT5

6.4. Questions concerning funding or fund citations may be answered by calling the Production Controller at 570-895-6396 or DSN 795-6396.

6.5. All customers may request maintenance services by submitting either a DA Form 2407 (or automated equivalent), DD Form 1348-1 or DD Form 1149 shipping documents.

6.6. All equipment that comes in reusable containers should be shipped in those containers. All other equipment should be properly packaged so that no further damage will occur. Place a copy of the maintenance request inside the container with the equipment.

6.7. Accessories and maintenance manuals must be sent with the equipment to prevent delays in the repair or service. All accessories sent with the equipment shall be indicated in the remarks section of the shipping document.

6.8. The Maintenance Expenditures Limit (MEL) shall be included in the remarks section of the shipping form. Failure to include the MEL will result in delays.

6.9. When active army units submit equipment that belongs to a serviced unit, the owning units address and UIC will be annotated in the remarks section of the shipping document.

6.10. Equipment items not listed in services available or on the USAMMA maintenance website should not be sent without prior coordination.

6.11. The USAMMA MMOD-PA is not responsible for billing customers. For questions concerning billing please call USAMMA's Maintenance Operations Division at 301-619-4368 or DSN 343-4368.

Chief, Medical Maintenance Operations Division
USAMMA

APPENDIX C. EXTERNAL STANDARD OPERATING PROCEDURES, MEDICAL MAINTENANCE OPERATIONS DIVISION, TRACY, CA

U.S. Army Medical Material Agency Force Sustainment Directorate Medical Maintenance Operations Division, Tracy California
External Standing Operating Procedures

MCMR-MMO-SMTR March 2006

1. Purpose

To provide guidance to units and organizations requesting services from USAMMA's Medical Maintenance Operations Division-California (MCMR-MMO-SMTR) at Defense Distribution Center, Tracy Location, Tracy CA 95304-9150.

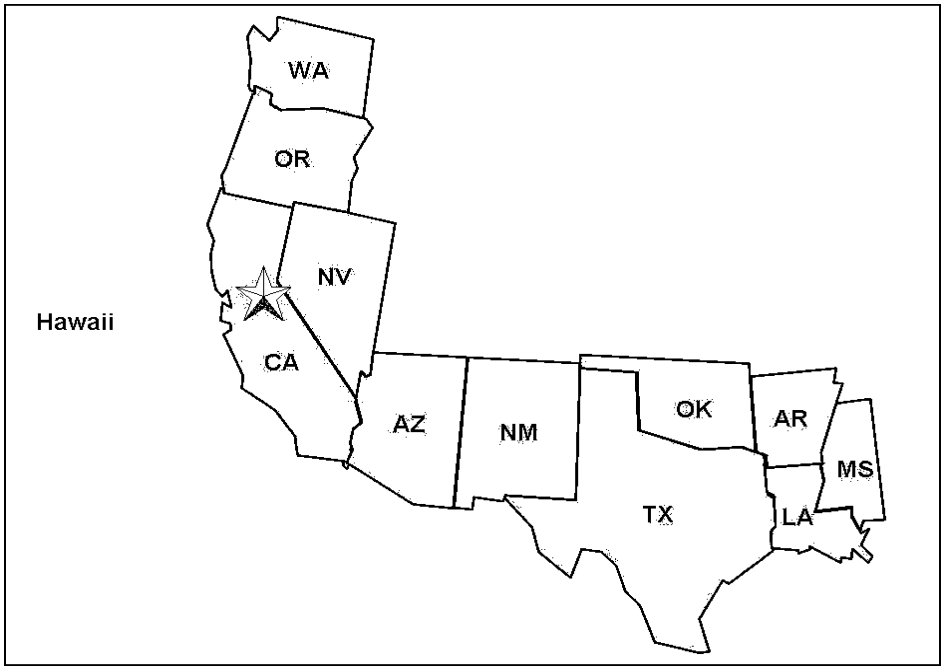
2. Scope

These procedures are applicable to all units and activities requesting support.

3. Mission

The USAMMA Medical Maintenance Operations Division, Tracy, provides depot-level services and functions in support of TOE medical equipment, specializing in x-ray equipment and Special Purpose Test, Measurement, Diagnostic Equipment (TMDE-SP).

3.1. Tracy serves as the regional manager for all your TOE medical maintenance support requirements. However, although we do not support optical and audiometer equipment in-house, we can assist you in coordinating assistance from Tobyhanna if necessary. The map below depicts Tracy's Region.



4. Hours of Operation

Normal duty hours are 0450 to 1520 (PT) daily Monday through Friday, excluding holidays. A telephone recorder is available on 209-839-4557 or DSN 462-4557 for calls received after duty hours. When leaving messages please speak clearly so your message will be understood. Leave your name, telephone number, and the work order number if available and we will respond the following workday.

POSITION	COMMERCIAL	DSN
Chief	209 839-4556	462-4556
Shop Supervisor	209 839-4560	462-4560
Production Control	209 839-4557	462-4557
Fax	209 839-4563	462-4563
Website: http://www.usamma.army.mil/maintenance/operations_divisions.cfm		

5. Services Provided

5.1. Assistance Visits: On-site assistance visits will be conducted annually by Tracy Division for National Guard supported units within our region. This will be accomplished by division maintenance teams or arranged maintenance support with other maintenance activities in the state. The Chief/Shop Supervisor, Tracy Division, will coordinate scheduling of visits. All other assistance visits to include On-Site technical assistance, training and X-ray acceptance inspection requests will be coordinate through HQ, USAMMA. Please contact the Chief, Medical Maintenance Division prior to submitting any request for assistance. Any unit desiring an on-site assistance visit with the exception of National Guard units will be required to submit a memorandum to:

USAMMA
ATTN: MCMR-MMO-SM
1423 Sultan Drive, Suite 100
Fort Detrick MD 21702-5001

5.2. Depot level services for all TO&E except optical and audiometer equipment.

5.3. Telephonic technical assistance.

5.4. Repair and Return services all TO&E except optical and audiometer equipment.

5.5. Calibrate and repair special purpose test, measurement, and diagnostic equipment (TMDE-SP) as listed below.

T.M.D.E. LISTING FOR MAINTENANCE			
	Item / Nomenclature	**NSN**	**Model**
T.M.D.E. SP (Special Purpose)	Meter, X-Ray Calibration Multimeter, Radiographic X-ray Calibration & Verification System	6525-01-502-0504 6525-01-387-0212 6625-01-312-0894	UNFORS 710-L PMX-III Victoreen 07/457/472/473
	Gas Flow Analyzer Calibrator, Gas Flow	6515-01-491-6615 6695-01-255-2855	VT-Plus/ VT-Plus HF RT-200
	Anesthetic Gas Analyzer	6630-01-487-6987	Riken 1802D
	Analyzer, NIBP	6515-01-449-1423	Cufflink
	IV Pump Analyzer	6515-01-449-2331 6515-01-479-2355	IPT-1 IDA-4
	Defibrillator Analyzer Tester, Defibrillator	6515-01-499-1420 6625-00-433-9063	Impulse 4000 DT2000A
	Densitometer, SU150/P	6525-01-161-1945	07-423
	Simulator, Medical Function Calibrator Generator, ECG	6625-01-298-3830 6625-01-286-2741 6515-01-049-9449	215M 217A ECG 100
	Foot Candle Meter	6695-01-303-0294	9-118
	Thermometer, Dig.	6685-01-292-7873	51-II
	Oscilloscope, Digital	6525-01-448-9577	THS720P
	Wattmeter, Ultrasound Therapy	6625-01-504-2654 6625-01-141-7357 6625-01-487-6986	UW-4 UMR3-C UMR 3-D
	Simulator, Pulse Oximeter	6515-01-504-8537 6515-01-499-1422	INDEX 2 Cardiosat
	Tachometer, Stroboscopic	6680-01-307-6190 6680-00-243-9977	1893A 1726
	Test Set, Electro-surgical	6515-01-438-2409 6625-01-042-8213	454A RF302
	Tester, Current Leakage	6625-01-142-8233 6625-01-207-8270	232M 232D
	Tester, Ventilator	6515-01-449-1421	Pneuview 3600i

5.5.1. TMDE-SP Calibrated or Verified at Tracy

If listed as **Verify / OEM**, Tracy will verify and if within calibration will complete. If item is out of calibration and needs adjustment, the item will be sent to OEM for repair and calibration. If listed as **Calibrate / OEM** Tracy will make adjustments to bring item within calibration. If unable to bring within tolerance Tracy will send to OEM for repair and calibration.

TMDE-SP CALIBRATED OR VERIFIED AT TRACY		
ITEM / NOMENCLATURE	**MODEL**	**SERVICE**
Meter X-Ray Calibration	UNFORS 710-L	Verify/OEM
Multimeter Radiographic	PMX-III	Verify/OEM
X-Ray Calibration & Verification System	Victoreen 07/459/472/473	Calibrate
Gas Flow Analyzer	VT-Plus	Verify/OEM
Calibrator Gas Flow	RT-200	Calibrate/OEM
Anesthetic Gas Analyzer	Riken 1802D	Verify/OEM
Analyzer NIBP	Cufflink	Calibrate
IV Pump Analyzer	IPT-1 and IDA-4	Calibrate
Defibrillator Analyzer TPA	Impulse 4000	Calibrate
Tester Defibrillator	DT2000A	Calibrate
Densitometer, SU150/P	07-423	Calibrate
Simulator, Medical Function	215M, 217A	Calibrate
Calibrator Generator, ECG	ECG 100	Calibrate
Computer, Laptop	Various	Load Software
Foot Candle Meter	9-118	Calibrate
Thermometer, Digital	51 II	Calibrate
Oscilloscope, Digital	THS720P	Send out to TSC Or OEM 100%
Wattmeter, Ultrasound Therapy	UW-4	Calibrate
Wattmeter, Ultrasound Therapy	UMR 3-C	Calibrate
Wattmeter, Ultrasound Therapy	UMR 4-D	Calibrate
Simulator, Pulse Oximetry	INDEX 2M FE	Calibrate
Simulator, Pulse Oximetry	Cardiosat EF	Calibrate
Tachometer, Stroboscopic	1893A	Calibrate
Tachometer, Stroboscopic	1726	Calibrate
Test Cassette, X-Ray	07-467	Calibrate
Test set, Electrosurgical	454A and RF302	Calibrate
Tester Current Leakage	232M and 232D	Calibrate
Tester, Ventilator	Pneuview 36000I	Calibrate

5.5.2 Test Measurement, and Diagnostic Equipment (TMDE)

All field medical unit special purpose TMDE-SP such as defibrillator testers, patient simulators, electro surgical test sets, and x-ray calibration sets are supported with repair and calibration services. To maintain capability when TMDE-SP is turned in for repair or calibration a like item may be exchanged or borrowed, if available.

5.6. Direct Exchange of X-ray Tube Heads

An exchange for x-ray tubes may be requested by calling customer assistance at 209-839-4560/4556DSN 462-4560/4556 or. A questionnaire will be faxed to your activity to determine the appropriate information for the exchange. Tracy Division rebuilds or provides a direct exchange for the following types of x-ray tube heads:

DIRECT EXCHANGE OF X-RAY TUBE HEADS	
National Stock Number (NSN)	Tube Type
6525-00-C95-9590	Picker PX1300 Series
6525-00-C95-9600	Picker PX1400 Series
6525-00-C95-9560	Eureka Emerald 125 Series
6525-00-C95-9550	Eureka Sapphire 150th Series
6525-00-C95-9570	Eureka Diamond 150th Series
6525-00-C95-9785	Philips ROT 350-10
6525-00-C95-9630	G.E. Maxiray 75
6525-00-C95-9640	G.E. Maxiray 100
6525-00-C95-9640	G.E. Maxiray 100 Flouro
6525-01-328-3430	Dynarad/Port-A-Ray 1200

6. Requesting Services

6.1. Prior to sending any nonstandard medical equipment, call DSN 462-4557 to ensure that the items can be supported at this division.

6.2. When shipping equipment for repair or service, please use the following address:

Medical Maintenance Operations Division
USAMMA, Building T-255
25600 South Chrisman Road
Tracy CA 95304-9150
DODAAC: W62SEV

6.3. All units, organizations, facilities or agencies other than Active Army (P84 and medical P1 funded) are required to reimburse USAMMA for all services. Army National Guard and U.S. Army Reserve units are not required to submit fund citations as their respective headquarters provide funds on an annual basis to cover their medical equipment. Funding documentation from other reimbursable customers must include the following:

* Document number to include owning DODAAC or UIC, and address
* Funding citation
* Authorized funding (amount authorized for service)
* Point of contact and telephone number
* Nomenclature of item
* National stock number, management control number, or non-standard number
* Quantity of items to include serial numbers
* Any accessories, maintenance manuals, or other materiel which may be required to perform services on the equipment
* Identification of all accessories

6.4. Questions concerning funding or fund citations may be answered by calling DSN 462-4557 or commercial 209-839-4557.

6.5. All customers may request maintenance services on their medical equipment by submitting either a DA Form 2407 (or the automated equivalent) or DD Form 1348-1, Shipping Document. TMDE-SP equipment must include DA7372, POC and a return address.

6.6. All equipment that has reusable containers will be shipped in those containers. If equipment does not have reusable container equipment will be packed so that no further damage can occur.

6.7. Place a copy of the document being used as the maintenance request inside the shipping container with the equipment. The transportation personnel or the commercial carrier often removes documents placed on the outside of the container.

6.8. Accessories and maintenance manuals must be sent with the equipment to prevent delays in the repair or service. All accessories or materials sent with the equipment shall be indicated in the remarks section of the DA Form 2407 and DD Form 1348-1 or by other documentation.

6.9. The Maintenance Expenditure Limit (MEL) shall be included in the remarks section of either the DA Form 2407 or DD Form 1348-1. Failure to include the MEL will result in delay of repairs.

6.10. When Active Army units submit equipment that belongs to another unit, to the Medical Maintenance Operations Division (MMOD) Tracy, the owning unit, address, UIC, and DODAAC will be given in the remarks section of either the DA Form 2407 or DD Form 1348-1. Unless otherwise specified, after repairs are completed the equipment will be returned to the owning unit.

6.11. Equipment items not listed in 5. Services, or on the USAMMA Maintenance website, should not be sent without prior coordination.

6.12. The MMOD-Tracy is not responsible for billing reimbursable customers. For questions concerning billing call the USAMMA's Resources Management Division at DSN 343-2111 or commercial 301-619-2111.

6.13. Any questions regarding MMOD-Tracy services, work order status, complaints, technical assistance or general information may be answered by calling DSN 462-4557/ 4556/4560 or commercial 209 839-4557/4556/4560. Please have the serial number of equipment item and work order number available when you call.

7. Direct Exchange of X-ray Tube Heads

An exchange for x-ray tubes may be requested by calling customer assistance at DSN 462-4560/4556 or commercial 209-839-4560/4556. A questionnaire will be faxed to your activity to determine the appropriate information for the exchange.

8. Medical Standby Equipment Program

The USAMMA MMOD-Tracy provides a Medical Standby Equipment Program (MEDSTEP) for selected x-ray tube heads and equipment. MEDSTEP assets may only be utilized to provide.

serviceable temporary replacement for equipment being serviced at the MSD-Tracy. The USAMMA Maintenance Operations Division must approve exceptions. Exceptions may be requested telephonically by calling 301-619-4365 or DSN 343-4365. Once the owner's original equipment is received back, the MEDSTEP item, to include all accessories, must be returned to the MMOD-CA. Reimbursable customers that use MEDSTEP must provide funds as necessary to restore the MEDSTEP item back to serviceable condition

9. Cannibalization Point

The USAMMA MMOD-Tracy maintains unserviceable assets of selected medical equipment for cannibalization. Authorized customers may request parts from Cannibalization for mission critical medical equipment when parts are not available from any other source.

Chief, Medical Maintenance Operations Division
USAMMA

APPENDIX D. USAMMA LOGISTICS ASSISTANCE PROGRAM, MEDICAL MAINTENANCE SUPPORT

The USAMMA Force Sustainment Directorate is in the process or revising its Logistics Assistance Program. The program is designed to assist medical TOE organizations with identifying logistics management concerns and solutions.

The follow excerpt is from the program's questionnaire that addresses medical maintenance specific issues, concerns, and information. A web-based questionnaire with information-specific links is available at the USAMMA home page (www.usamma.army.mil). The web-based questionnaire also includes **links** to separate pages containing information specific to all your TOE medical maintenance needs.

Questionnaire

Are you confident that your unit's medical equipment is maintained and reliable enough to save your life when needed?

1. Has the Unit Commander published a directive emphasizing the importance of and delineating leaders' and supervisors' responsibilities to ensure an effective unit level medical equipment sustainment program is established and maintained?

1.1. Are equipment operators (users) performing routine PMCS of the unit's medical equipment?

2. Does your unit have assigned medical equipment repairers (MOS 68A) responsible for your unit's medical equipment maintenance program? (If "NO" skip to question "3")

2.1. Does the medical maintainer have Standard Operating Procedures (SOP) (Internal and External) outlining the responsibility of the maintenance personnel, as well as the equipment operators'/supervisors' responsibilities, to ensure maintenance significant medical equipment is maintained to 10/20 standard and FMC? Sample Medical Maintenance SOP can also be found in **SB 8-75-11, APP C.** (http://www.usamma.army.mil/SB/2005_SB-11.pdf)

2.2. Do the assigned medical maintenance repairers have the appropriate Medical Maintenance Equipment and Repair Tool Kits?

Repairman's (1 per 68A)	W45334	YES	NO
Organizational	W45197	YES	NO

2.3. Do the medical maintenance repairers have the appropriate Test, Measurement, and Diagnostic Equipment (TMDE) and service kits to perform their medical maintenance mission?

2.3.1.Does the unit have the appropriate MOA from their MACOM providing authorization to maintain the TMDE-SP that is pending finalization of the BOIP and authorization IAW the Unit's MTOE?

2.4. Does your unit have the manufacturer's service literature and/or technical manuals (http://www.usamma.army.mil/Medical_Equipment_Publications.cfm) for all medical equipment authorized and on-hand within the unit?

2.5. Do your medical equipment repairers have adequate repair parts support? Are they familiar with the AMEDD's Centralized Class VIII Repair Parts Program?

2.6. Are your unit's medical equipment repairers utilizing the Unit Level Logistics System – Ground (ULLS-G) provided to manage the unit's medical equipment maintenance program?

2.6.1 Have your 68As received the ULLS-G certification training?

2.6.2.Have your medical equipment repairers reviewed the ULLS-G (medical specific) user manual located on AKO? (Have web-site manager Link to AKO)

2.7. Is the leadership familiar with the USAMMA medical maintenance evaluation checklist (Link to be provided) to assist commanders to evaluate the Unit's medical equipment maintenance program and maintenance preparedness?

3. Where does your unit receive medical maintenance support that is beyond or exceeds your unit's organic capability, i.e., MEDCEN, MEDLOG, USAMMA?

3.1 Is the medical maintenance support you receive responsive and abundant?

3.2. Is the command aware of the AMEDD Maintenance Sustainment Program (link to be provided) and the regional point of contact to assist your unit with all of your medical maintenance needs?

3.3. Are USAMMA's Maintenance Operations Depots responsive to your medical maintenance needs?

APPENDIX E. SAMPLE STANDARD OPERATING PROCEDURE FOR TOE ORGANIZATION (COMBAT SUPPORT HOSPITAL)

HOSPITAL - MEDICAL MAINTENANCE
INTERNAL SOP

Section I. General

1-1. Purpose: This SOP establishes basic principles, policies and procedures to be used as a standard guideline for the efficient operation of the Hospital Medical Maintenance Section.

1-2. Scope: This SOP applies to all personnel assigned or attached to the Hospital Medical Maintenance Section.

1-3. References:

a. AR 40-61
b. AR 750-1
c. TB 38-750-2
d. TB MED 750-2

1-4. Responsibilities:

a. Chief, Medical Maintenance Section will ensure that:

(1) Basic concepts, objectives, and policies are met for the maintenance of medical equipment.
(2) The maintenance of Hospital medical equipment is effectively performed throughout its lifecycle.
(3) Maintenance programs for repair, calibration/verification/certification, and electrical safety testing services are implemented and performed consistent with available resources.
(4) Planning, guidance, and assistance are provided to other organizational elements which impact on the medical maintenance mission.
(5) Guidance is provided to the S-2/3 in the development of educational and training programs in maintenance for equipment operators and medical equipment repairers.
(6) Commander and staff are frequently updated on the status of medical equipment maintenance and associated programs.
(7) A master file copy of both operator and maintenance manuals has been established in the maintenance section for all equipment on hand.
(8) Assigned Medical Equipment Repairers are utilized for medical maintenance and not assigned additional duties which may adversely affect the maintenance of medical equipment.

b. NCOIC, Medical Maintenance Section works under the general supervision of the Branch OIC and will ensure that:
(1) Programmed scheduled/unscheduled workloads are assigned to individual repairers commensurate with their training and in accordance with this SOP.
(2) His/her counterparts and hospital staff are apprised and informed of any issues concerning medical equipment maintenance services.

(3) Knowledge and application of maintenance service procedures are in accordance with military and/or manufacturer's instructions.

(4) Required administrative records are maintained in accordance with applicable regulatory guidance.

(5) Soldiers are recognized for outstanding performance of duties. Conversely, disciplinary problems or additional training requirements should also be documented and brought to the attention of the appropriate level of command.

(6) Property accountability and security procedures are in place IAW regulations and directives governing security, accountability, and control of tools, TMDE, and other Army property.

(7) Safety procedures are strictly adhered to during maintenance operations.

c. Medical Equipment Repairers work under the general supervision of the Branch NCOIC and will ensure that:

(1) Documentation on work orders and associated maintenance forms is legible and in compliance with this SOP and other applicable directives.

(2) Safety procedures are strictly adhered to during maintenance operations.

(3) Preventive maintenance is performed in accordance with applicable Technical Manual or Manufacturer’s Literature.

(4) Safety inspection/testing is performed in accordance with AR 40-61, TB MED 750-2, and NFPA 99.

(5) Personal responsibility is assumed for individual training and career development.

(6) Unsafe equipment is brought to the attention of user/operator personnel and their supervisory personnel.

(7) All maintenance related problems are communicated to their supervisors.

Section II. Maintenance Policies

2-1. Scheduled Services Program

a. Scheduled maintenance is all actions performed in an attempt to retain an item in a specified condition by providing systematic inspection, detection, and prevention of incipient failures. Scheduled maintenance includes Preventive Maintenance Checks and Services (PM), Calibration/Verification/Certification (CL), and Electrical Safety Testing (ST).

(1) PM - the care, servicing, inspection, detection, and correction of minor faults before these faults cause serious damage, failure, or injury. The procedures and the category of maintenance to perform PMCS are in the –10 and –20, equipment technical manuals, and lubrication orders.

(2) CL - the comparison of a medical system or medical device of unverified accuracy to a measurement system or device of known accuracy (which is directly traceable back to the National Institute of Standards and Technology (NIST))

to detect and correct if necessary, any deviations from required performance specifications of the medical system or medical device.

(3) ST - the preservation of an electrically safe environment for patients and staff through the evaluation and assessment of medical equipment to identify and correct electrical safety hazards that may exist in health care facilities.

b. Scheduled maintenance will be performed in accordance with *AR 40-61*, *TB MED 750-2*, and the equipment manufacturer's literature with regard to frequency of services.

c. All services will be documented on a DA Form 2404 using the format specified in *TB 38-750-2* with the following exceptions:

(1) Column b - Responsibility for the performance of corrective action will be annotated as being either equipment operator (OM) or Medical Maintenance.

(2) Column c - Nomenclature, serial number and MMCN number of each item serviced in that section.

(3) Column d - When corrective action is to be accomplished by the equipment operator, the corrective action required will be indicated (e.g., clean, replace, order, etc.).

(4) Any deficiencies listed on the operator DA Form 2404 that require operator level replacement components, parts, or accessories must have the NSN and/or the manufacturer's part number for the items and the document number confirming the item was ordered, recorded in the corrective action column (column d).

d. During the performance of scheduled services, minor repairs beyond the capability of the operator will be performed by medical equipment repairer. Upon completion of these minor repairs, the medical equipment repairer performing the repairs will initial the corrected block on the operator DA Form 2404.

e. When equipment repairs are expected to exceed 10/15 minutes, the corrective action will be to submit a work order. (When the corrective action is to submit a work order, ensure the hand receipt holder or designated representative responsible for the equipment is aware of the status of their equipment).

f. Upon completion of scheduled services within each section, items that did not receive services will be identified along with the reason services were not performed. A memorandum identifying the items unavailable for services along with a copy of the medical maintenance DA Form 2404 will be provided to the hand receipt holder and the Commander. For equipment that did not receive services due to not being located, the memorandum will be forwarded to the Property Book Officer listing these items so that appropriate property accountability actions are taken. One copy of all medical maintenance documentation will be provided to the hand receipt holder. The hand receipt holder must sign the completed documentation acknowledging receipt and understanding of his or her responsibilities.

g. Medical Maintenance personnel performing scheduled services in each section will consult with equipment operators to ensure operators are familiar with the unit medical maintenance policies and procedures.

2-2. Calibration/Verification/Certification (CVC) Services

a. CVC services will be performed IAW applicable TM or manufacturers literature and any other applicable guidance.

b. Upon receipt of new equipment, the TM or manufacturers literature will be researched to determine if CVC services are required. When so indicated, the appropriate manual and automated records will be initiated and the equipment placed on the scheduled services program.

c. Upon completion of CVC services, the affixed DD Form 2163 will be annotated. See *TB 38-750-2* for instructions. In addition to annotating the DD Form 2163, ensure the completion of CVC services performed is documented on the equipment's manual and automated maintenance history.

d. When performing CVC services for X-ray equipment, in addition to annotating the affixed DD Form 2163, a DA Form 2164 (*X-ray Verification/ Certification Worksheet*) must be completed IAW *TB 38-750-2*. A separate sheet of paper will be attached to the DD Form 2164 to indicate the manufacturer, model, serial number and date of calibration expiration of all items of TMDE used to perform the calibration. All documentation will be maintained in file 738-750i pending completion of the next X-ray calibration.

e. Defibrillators will receive CVC services semiannually, using a defibrillator analyzer. A DA Form 5624R (*DC Defibrillator Inspection Record*) will be used to record the results of the calibration service. In addition, a DA Label 175 (Defibrillator Energy Output Certification Label) will be affixed to the unit. The DA Form 5624R will be maintained on file 6 months pending the next CVC service.

f. In reference to calibration of scales, *TB 43-180* does not require calibration of scales other than those scales used at the local medical treatment facility (MEDDAC) that are designated as the official scales for weight determination. Upon request from the Hospital staff, a courtesy inspection of scales used for screening purposes within the unit may be performed, but a DD Form 2163 will not be affixed to the scales.

2-3. Electrical Safety

a. A continued effort will be made to provide an electrically safe environment within the Hospital. Protecting the patients and staff from electrocution and electrical hazards is essential.

b. All medical equipment will receive an electrical safety test after repairs or modifications are performed. Completion results of all electrical safety tests will be documented on appropriate maintenance forms.

c. If equipment does not meet required limits, the following steps will be taken:

(1) DA Forms 5621-R (*Leakage Current Measurements, General*) or DA Form 5622-R (*Leakage Current Measurements, EKG*), as appropriate, will be prepared for the item or system. The forms will document defects, recommendations and actions taken. Refer to *TB 38-750-2* for completion of these forms.

(2) A DD Form 1577 (*Unserviceable [Condemned Material] Tag*) will be affixed to the equipment.

(3) A work order must be initiated to correct the defect. Upon completion of the repair, a copy of the completed work order will be filed and attached to the appropriate Current Leakage Form in medical maintenance for a period of one year.

2-4. Unscheduled Services Program

These services include emergency and routine repair of medical equipment. These repairs may be performed either in shop or on site at equipment location. Other forms of unscheduled services are technical inspections and equipment installation or assembly. Unscheduled services should be submitted utilizing a work order from the requesting section.

2-5. Direct Support Maintenance

a. The local MEDCOM Installation Medical Supply Activity (IMSA) has responsibility for providing Direct Support level maintenance to TOE medical units as stated in AR 40-61. When the availability of maintenance support from the IMSA is resource constrained, contact USAMMA to coordinate maintenance support.

b. All efforts to accomplish medical maintenance missions at unit level will be exhausted prior to request for support. Examples of need for support are lack of personnel or TMDE.

c. All medical equipment submitted to Direct Support will be submitted on a work order with the receipt copy being maintained in Medical Maintenance along with original work order from equipment hand receipt holder.

Section III. Safety Program

3-1. Shop Safety

General shop safety rules will be practiced in the Hospital medical maintenance section at all times. Important points of shop safety are:

a. Prevent electrical shock by identifying hazards and following safe repair procedures;

b. Follow safe handling procedures for medical equipment that may be contaminated;

c. Be familiar with fire protection rules, plans and evacuation routes;

d. Ensure there is proper ventilation for respiratory protection while performing any task where toxic materials, fumes, mists, or vapors are used or produced.

e. When working on x-ray equipment, ensure proper radiation safety procedures are followed at all times. Safety procedures for operation of X-ray equipment includes wearing of X-ray film badges, posting of warning signs making others aware that an X-ray unit is in use, and ensuring proper shielding requirements from radiation source are met.

f. When using power equipment, proper eye and hearing protection devices are worn.

g. All staff members must be familiar with proper operation and location of fire extinguishers and eye wash system located within the medical maintenance shop.

Section IV. Material Maintenance Management

4-1. General

a. Maintenance management is the process of establishing objectives to carry out maintenance responsibilities. Maintenance management consists of those continuing actions of planning, organizing, controlling and evaluating the use of manpower, funds, and facilities to accomplish missions and tasks.

b. A prime objective of the medical maintenance supervisor is to ensure optimal management and control of critical maintenance resources. Accomplishment of this objective is assisted by utilizing a management data collection system to monitor the performance of the medical maintenance section in relation to established performance standards.

c. The medical maintenance section will use the maintenance automation system (see *TB MED 750-2, Appendix E*) authorized to MTOE organization for management of medical equipment maintenance and repair parts within the Hospital.

4-2. Work Load Management

a. The NCOIC of medical maintenance must analyze requirements and direct resources toward the accomplishment of maintenance operations. The NCOIC must forecast requirements for PMCS and unscheduled services using information available from the authorized maintenance automation system outputs (see Appendix E).

b. Workload control priorities are defined in AR 40-61, which states that scheduled services take precedence over all other services except emergency repairs. While in garrison, emergency repairs are any repairs required to restore on DA Form 2406 reportable medical equipment to a fully mission capable condition. When deployed, an emergency repair work order is any work order submitted on priority 01-03 equipment, which must be signed by the Chief or NCOIC of the medical maintenance section.

4-3. Man-Hour Accounting

A man-hour accounting system will be used by the medical maintenance section to identify the use of duty hours for each direct labor person within the Hospital Medical Maintenance Section. Medical Maintenance supervisors must ensure that all direct labor personnel are familiar with the following terms when completing individual time sheets:

a. Reporting period. Each month consists of one reporting period. The reporting period is from the first day of the month to the last day of the month.

b. Overtime. Overtime will be based upon a 40-hour week (8 hours per day for each duty day) within the report period. Man-hours expended in excess of this standard will be considered overtime.

c. Assigned man-hours. This is the number of hours available based on the number of duty days multiplied by 8 hours per day during the report period.

d. Available man-hours. These are man-hours available for production of direct or indirect labor.

e. Direct labor. This is labor expended on equipment either performing scheduled or unscheduled services.

f. Indirect labor. This is labor expended performing duty within the medical maintenance section that is not directly related to performing services on a piece of equipment.

g. Duty absence. All time expended performing military training, inspections, parades, guard duty, offensive maneuvers, formations and time away from the section due to any other military requirements.

h. Non-duty absence. These are man-hours spent during duty time such as official leave, sick call, passes and excused personal time to take care of personal business.

Section V. Maintenance Shop Stock/Tool Control Procedures

5-1. Repair Parts Management

a. Standard and nonstandard repair parts will be managed IAW the guidance provided in *AR 40-61*, *AR 710-2*, *TB MED 750-2*, and this SOP.

b. Shop stock (demand supported stock), mission essential, bench stock and minimum order repair parts are authorized IAW *AR 40-61*. The authorized maintenance automation system (see Appendix E) will be used to manage and account for repair parts.

5-2. Shop Stock

a. Selection of items for stockage will be based on three demands within a 180-day period. Once a repair part has met the criteria for initial stockage, at least one demand within a 180-day period must occur to retain it as a stockable item.

b. Computation of the requisitioning objective (RO) and reorder point will be IAW *AR 40-61* and *AR 710-2*.

5-3. Mission essential

The HCA commander may authorize a stocks of parts based solely on the premise that these items are deemed essential to support the mission. These repair parts will normally be associated with:

(1) Lifesaving equipment.
(2) Equipment for which the manufacturer no longer supply parts.
(3) New equipment until demand data can be established.

5-4. Bench Stock

a. Bench stock is defined in AR 710-2. Bench stock will not include repair parts unique to an end item of equipment.

b. Bench stock will be managed IAW AR 710-2, and DA Pam 710-2-2.

c. Bench stock replenishment tags (DA Form 1300-4) are not required. The authorized maintenance automation system (see *TB MED 750-2, Appendix E*) generated bench stock listing provides all of the information required on the replenishment tag. The bench stock listing will be reviewed semi-annually by the maintenance officer.

d. Bench stock costs are not included in the cost of repair; however accounting for bench stock parts is required. Work orders will include all parts used, to include bench stock parts (except common hardware and bulk material such as nuts, bolts, etc.). Bench stock parts used will be identified on the work order. Column 20 k of the work order will indicate "n/c" meaning there is no charge.

5-5. Minimum Order - Shop stocks purchased as a result of minimum order requirements which are in excess of the stockage objective or not demand supported are authorized to be retained in shop stock and reduced through attrition. The DA Form 3318 for these items will be annotated to indicate that the item from the vendor is MO and the minimum dollar order (e.g., MO $100.00). Repair parts procurements requiring a minimum order should be ordered through the USAMMA. Under the auspicious of the AMEDD Centralized Repair Parts Program (ACRPP), USAMMA will incur all additional costs associated with minimum order requirements.

a. The Hospital has been designated as a Force Activity Designator (FAD) XXXX unit. The medical maintenance section can use one of three priorities when requisitioning parts. These priorities are 02, 05, and 12.

b. The maintenance officer and NCOIC are the only authorized personnel that can initial off on 02 and 05 repair part requisitions.

c. The individual certifying 02 and 05 requisitions will place their initials in column h of the document register (DA Form 2064) for each request submitted.

5-5. Request for Repair Parts

a. The work order may be used to request repair parts that are known to be stocked in shop supply. All requests for repair parts will be reviewed, approved and initialed by the NCOIC or the maintenance officer.

b. A DA Form 3161 will be used to order repair parts that are not stocked in shop supply. The DA Form 3161 will be attached to the work order and filed in the awaiting parts file once the repair part has been ordered.

c. All repair part requisitions will be ordered on a DA Form 2765-1 for standard repair parts or a DA Form 1348-6 for parts that are non-standard and must be local purchased. All class VIII-repair parts will be ordered through the Hospital medical supply section. All class 9-repair parts will be ordered through the motor pool TAMMS/PLL clerk.

d. Once the repair part has been ordered, it must be logged on the document register with the applicable document number. The demand must also be annotated on the DA Form 3318 with the document number and entered into authorized maintenance automation system (see *TB MED 750-2, Appendix E*) as a due in.

5-6. Tools Accountability

a. *AR 735-5* states that all tools with a unit price greater than $5 are classified as durable property that must be controlled and responsibility assigned using a DA Form 2062.

b. Durable items that are components of sets, kits or outfits will be controlled using hand receipt annexes or component lists. The senior maintenance person will sign for tool kits and individual tools from the property book officer and issue the tool or kit by sub-hand receipt to the individual repairperson.

c. Durable items that are not components of a set, kit, or outfit will be controlled using hand receipts and sub-hand receipts. These items may also be controlled using tool room procedures described below:

(1) Tools issued for one day or less will be issued using an internal log or temporary hand receipt.

(2) Tools issued for longer than one day but less than 30 days will be issued on a temporary hand receipt. Hand receipts (DA Form 3161) will be completed in duplicate. The original will be filed in the medical maintenance section and the copy will be given to the individual signing for the tool or tools. Once the item or items has been returned, both copies of the temporary hand receipt must be destroyed.

5-7. Inventory of Tools

a. All tools will be inventoried on a quarterly basis. Lost or damaged tools will be annotated on a DA Form 2062 shortage annex.

b. Tools that are lost due to negligence on the part of the responsible individual must be replaced by that individual either by direct replacement or a statement of charges.

Section VI. Shop Operations

6-1. Retention/Disposition of Medical Maintenance Records

a. The Hospital medical maintenance section uses the authorized maintenance automation system (see *TB MED 750-2, Appendix E*) to manage all maintenance information for medical equipment. *DA Pam 738-750* is for manual operations and does not apply when a authorized maintenance automation system (see *TB MED 750-2*, Appendix E) generated document provides the same information as an Army standard manual document (example: DA Form 2409) need not be maintained because authorized maintenance automation system (*TB MED 750-2, Appendix E*) provides all scheduled and unscheduled service data on the automated maintenance history for each piece of medical equipment. However, all applicable manual records must be established on each piece of maintenance significant equipment which are to be used in the event of an extended automated system (authorized maintenance automation system (see *TB MED 750-2, Appendix E*) failure or downtime.

b. *AR 25-30*, Chapter 3, is specific in that the creation of a form for a purpose for which a higher echelon form exists is prohibited. Accordingly, the Hospital medical maintenance section will use existing forms (i.e., Work order, DA Form 3161) for managing maintenance requests and repair parts rather than a variety of locally devised forms. Likewise, the use of commercially procured labels, stickers or forms to document performance of safety tests or CVC services is prohibited. Only those forms listed in *TB 38-750-2* will be utilized.

c. Retention/Disposition of completed work order (Maintenance Request) will be filed in work order number sequence by close date and kept on file for a period of one year following the close date.

d. Retention/Disposition of automated forms will be IAW the procedures consistent with *TB MED 750-2, Appendix E*.

(1) Automated MMCN Listing will be maintained for a period of 90 days with a current listing being produced and filed on a monthly basis.

(2) Automated Maintenance Performance Report will be maintained for a period of one year with a current report being reviewed and filed weekly.

(3) Automated Maintenance History for all medical equipment will be generated on a quarterly basis and maintained until the next quarter at which time it will be disposed of. Individual maintenance histories will be produced in duplicate for equipment that is turned in. One copy will be turned in with the equipment and one copy will be filed for a year.

6-2. Priorities

a. The complexity, density and the availability of maintenance resources requires the establishment of priorities for the repair and/or performance of scheduled maintenance services. The priority system developed at the CSH Medical Maintenance Section must be strictly adhered to.

b. The significance of each area within the hospital to the overall delivery of medical care must be evaluated to determine each section's priority. The following is the list of hospital sections and their priority:

(1) Critical Care Areas:

(a) OR 1/2/3	Priority 02
(b) ICU 1/2/3/4	Priority 02
(c) EMT	Priority 02

(2) Critical Support Areas:

(a) CMS 1/2/3	Priority 05
(b) Labs Blood/General	Priority 05
(c) X-ray	Priority 05

(3) Other areas:

(a) ICW 1-8	Priority 12
(b) MCW 1-10	Priority 12
(c) Clinics/Dental	Priority 12
(d) Pharmacy	Priority 12
(e) Misc. Non Patient care areas	Priority 24

c. The basic section priority will be assigned to all equipment maintenance requests received from that area with the exception of critical or lifesaving equipment. Any exception to this policy must be approved and initialed on the work order by the maintenance officer or NCOIC.

d. Selected priorities will be used for critical or lifesaving medical equipment. These pieces of equipment will receive a higher priority than the section priority. For example: A defibrillator in an ICW with a priority of 12 would be a priority 01 because it is a lifesaving critical piece of equipment.

e. In garrison, the highest priority will be 02. Priority 02 is reserved for DA Form 2406 reportable items in a non-mission capable status.

6-3. Scheduling and deferring maintenance

a. *AR 40-61* states that medical equipment in field medical units will be completed annually. The exception to this being defibrillators, which should be tested semi-annually. The maintenance officer may increase other equipment items to a semi-annual schedule. During prolonged exercises or missions involving patient treatment, scheduled safety testing of electrically operated medical equipment designated for use in critical care areas will be performed on a semi-annual basis.

b. Due to the maintenance resources available and the configuration of DEPMEDS, a cyclic scheduled maintenance program is necessary. This means that 100% of the medical equipment in the hospital must be accomplished over a 12-month period. In order to accomplish this requirement, a certain number of sections or wards must be serviced each month. Determination as to which areas will be

serviced during a particular month will be coordinated between the medical maintenance staff and Department of Nursing.

c. There will be times when a scheduled area will not receive services due to mission requirements or a shortage of maintenance personnel or resources. When scheduled maintenance is deferred, the action must be documented. The reason services were not performed will be annotated on the scheduled maintenance listing and initialed by the OIC or NCOIC of the Medical Maintenance Section. A copy of services not performed will be forwarded to the Chief Wardmaster who will coordinate with the medical maintenance NCOIC as to when the deferred services can be accomplished.

6-4. Equipment Management

a. Items of equipment requiring an individual historical record will be assigned an MMCN number. These items will be determined by maintenance managers based on item cost and type.

b. Items of non-technical equipment or equipment that does not require a maintenance history will be considered a group managed item. Group managed items will not have an individual MMCN number but a group managed MMCN number will be assigned to each area of the hospital to record scheduled and unscheduled services on group managed items within each area.

c. The performance of scheduled services will be recorded using the authorized maintenance automation system (see *TB MED 750-2*, Appendix E) generated scheduled service listing. Base dates for areas may be changed to adjust the workload or to have the services scheduled when desired. Priorities, scheduled service requirements and performance times must be reviewed periodically.

d. When an individual piece of equipment is transferred from one area to another, the scheduled service base dates must be changed to the base date of then new location. This action should be initiated upon notification from the property book officer or unit supply, that a piece of equipment has been moved.

e. Scheduled services performed that are not on the authorized maintenance automation system (see *TB MED 750-2, Appendix E*) scheduled service listing must be recorded using the unscheduled work order transactions as appropriate (i.e., PM, CL, ST).

f. Scheduled services accomplished as a portion of a repair, action code RE, will not be recorded as separate actions. All actions necessary to restore defective equipment to a fully mission capable status are considered part of the repair, to include electrical safety and any required calibration/verification. Total man-hours expended for all actions performed will be included in the RE total.

g. The NCOIC will ensure that copies of the latest authorized maintenance automation system (see *TB MED 750-2, Appendix E*) outputs applicable to maintenance management are on hand and available to all maintenance personnel. The

equipment density listing should be manually updated as changes occur (i.e., additions, deletions, MMCN, serial number, model number, etc.).

h. The automated work order register will be reconciled at least monthly. All work orders listed on the register must be accounted for, those work orders on hand and not on the register must be entered into the system. Work orders on the register that are not located must be researched and the appropriate action taken.

i. When items of medical equipment due scheduled services cannot be located, a reasonable effort should be made to locate the item, but excessive time should not be spent locating the item. If the equipment operator/user is unable to locate the equipment, the required scheduled service will be closed out and identified as not being located.

j. The NCOIC must ensure that the scheduled services are completed in a timely manner and entered into the authorized maintenance automation system (see *TB MED 750-2, Appendix E*) data base.

6-5. Maintenance Request (Work order)

a. All Maintenance requests (Work order) once processed in authorized maintenance automation system (see *TB MED 750-2, Appendix E*), will be controlled by the NCOIC. The NCOIC will assign each work order to a technician in order of priority.

b. Maintenance requests will be filed in priority sequence by work order number and issued to a technician in the same order. Once a work order is assigned to a technician, the NCOIC will ensure the work is started in a timely manner.

c. Upon completion of repair the technician will return the work order to the NCOIC for review and close out on the work order register. The NCOIC or senior technician must inspect the completed work and initial in the inspected block of the Work order.

d. Once completed and processed, the work order will be placed in the awaiting pick up file. The equipment will be placed in the designated area for equipment pick up. The NCOIC will call the section NCOIC to inform them that the equipment is ready to be picked up.

e. Work orders that require parts to be ordered will be handled in the following manner:

(1) The work order with DA Form 3161 for required parts will be submitted to the NCOIC.

(2) The NCOIC will verify parts request and priority of requisition. The requisition will then be ordered through the appropriate class of supply and work order status updated on authorized maintenance automation system (see *TB MED 750-2, Appendix E* to indicate that the work order is awaiting parts.

(3) Once completely processed, the work order and attached DA Form 3161 will be filed in the awaiting parts file in priority and work order sequence.

(4) Upon receipt of requested parts, the work order will be placed in the parts received file. The NCOIC will issue the parts and work order to the technician who ordered the parts.

(5) Once the parts are installed and the work order has been completed, the work order will be given to the NCOIC for processing. The NCOIC will ensure that the work order is closed out in authorized maintenance automation system (see *TB MED 750-2*, Appendix E) and all costs posted to the maintenance history for the repaired item. The work order will be placed in the awaiting pick up file and the owner will be notified. The equipment will be placed in the designated awaiting pick up area.

6-6. Modification and Alteration of Medical Equipment

a. Modification and alteration of medical equipment will only be performed when directed by USAMMA.

b. Suggested modifications should be forwarded directly to USAMMA and will not be implemented until the suggestion has been approved.

6-7. Test, Measurement and Diagnostic Equipment (TMDE)

a. The NCOIC or designated representative in the medical maintenance section will ensure that TMDE used in the repair and calibration of medical equipment is calibrated at the proper interval.

b. Calibration requirements for TMDE are listed in *TB 43-180*. The unit TMDE coordinator will notify the section when an item is due for calibration. The item will be submitted on AMXTM Form 34A to the local TMDE Support Center.

c. Medical specialty TMDE that is not supported by the local TMDE Support Center must be sent to the DEPMEDS TMDE Support Lab at Tracy Depot. These items include patient simulators, defibrillator analyzers, electrical safety analyzers, electrosurgical analyzers and any other medical TMDE that cannot be calibrated locally.

d. TMDE that is submitted for calibration or repair must be clean and complete with all accessories and cables etc. that are required to perform calibration of the equipment. TMs or manufacturers literature will also be submitted with each item and documented on the Form 34A as being turned in with the equipment along with any accessories.

e. TMDE that does not require calibration must have a DA Label 80 attached with the letters CNR stamped on the label identifying them as TMDE that does not require calibration.

6-8. Maintenance of Support Equipment

a. Maintenance of support equipment is essential to the readiness of the Medical Maintenance Section. The primary items of equipment are the medical maintenance ISO shelter and the Environmental Control Unit (ECU).

b. Maintenance on the ISO shelter will be performed on a monthly basis. A monthly DA Form 2404 will be completed and PMCS performed IAW the Technical Manual. The DA Form 2404 will indicate all deficiencies noted with part numbers and document numbers listed for parts that are needed.

c. Operator Maintenance of the ECU will be performed on a weekly basis. A weekly DA Form 2404 will be completed IAW the Technical Manual and will list all needed repair parts and document numbers that are needed. The DA Form 2404 will be submitted to the motor pool upon completion of the weekly PMCS. Repair part status will be requested and updated on a weekly basis. Assistance will be provided to the utilities section when the equipment is due for scheduled services.

d. A copy of each DA Form 2404 will be filed in the medical maintenance section for all support equipment. An individual file will be maintained for each item.

e. For man-hour accounting purposes, time will be carried as productive indirect time.

Section VIII
Technical Inspections (TI) on Medical Equipment

7-1 Types of Technical Inspections

a. TI for Issue. This is an inspection of newly procured equipment prior to issue. Equipment will be inspected for:

(1) Appearance (external damage).
(2) Completeness (accessories, manuals, etc.).
(3) Internal condition (damage, leaks, broken parts, etc.).
(4) Proper performance.

b. Part of the TI for Issue is to complete all manual and automated maintenance records on maintenance significant items. Non-technical or non-maintenance significant medical equipment must also receive a technical inspection, but do not require maintenance records.

c. Information as to the recipient or hand receipt holder for the equipment must be provided by unit supply or the PBO. The equipment hand receipt holder and the location must be provided prior to the equipment leaving the shop. This is necessary to ensure maintenance records accurately reflect equipment location and proper base date to receive scheduled services.

d. TI for turn in. This is an inspection of medical equipment, maintenance significant or non-maintenance significant that is excess.

e. The TI for turn in work order must come from the PBO. If the equipment is maintenance significant item with an assigned MMCN number, all maintenance records must be closed out as part of the TI.

f. All equipment that receives a TI for turn in must be tagged with a DD Form 1577 (Material Condition Code Tag) prior to being returned to the PBO.

7-2. Condition Coding of Medical Equipment

a. Upon performing a technical inspection for turn in on a piece of medical equipment, a supply condition code must be determined. The following supply condition codes will be used when condition coding medical equipment:

(1) Code "A" - To serviceable medical equipment with over 6 months remaining life expectancy.
(2) Code "B" - To serviceable medical equipment which has reached or exceeded its life expectancy.
(3) Code "F" - To unserviceable, economically repairable medical equipment.
(4) Code "H" - To unserviceable, uneconomically repairable medical equipment which does not meet the repair criteria; i.e., exceeding the Maintenance Expenditure Limit (MEL).

b. To assist in assignment of condition codes, a Maintenance Expenditure Limit graph is located in *TB MED 7*.

c. Condition coding is not required by the technician for repair services. However, if in the process of the inspection and evaluation of the equipment, it is determined that repair costs will exceed the MEL, then a supply condition code "H" will be assigned. When this situation occurs, the following actions are required:

(1) The technician will annotate on a work order the following:
(a) Estimated parts and parts cost to return the equipment to a serviceable condition.
(b) Estimated man-hours to complete the repair.
(c) A supply condition code.

(2) The senior maintenance manager will:
(a) Verify and authenticate the condition code assigned by the technician by placing his or her signature on the Work order.
(b) Notify the hand receipt holder by memorandum (Figure 8-2).
(c) Attach a copy of the maintenance history and work order to the memorandum.
(d) A copy of the memorandum will be filed in a suspense file pending decision on the waiver.

(3) The hand receipt holder is responsible to:

(a) Consult with the maintenance NCOIC or OIC and unit supply/PBO.

(b) Prepare an endorsement to the hospital commander if a waiver is requested and provide the necessary justification, i.e. equipment is essential to the unit readiness or mission.

(c) If the hand receipt holder decides that repair of the equipment is not desired, the memorandum will be returned to medical maintenance indicating that the equipment is not to be repaired. Upon receipt of the memorandum, the equipment will be returned to the hand receipt holder. The hand receipt holder will then notify unit supply or the PBO.

(4) The PBO is responsible to:

(a) Prepare turn in documents when disposal action is required.

(b) Arrange for pick-up and transportation of equipment to DRMO.

(c) Make appropriate adjustments to the hand receipt and property book.

(5) The commander is responsible to:

(a) Endorse the memorandum back thru the hand receipt holder to medical maintenance indicating approval or disapproval.

(b) An approved waiver must be signed by the hospital commander.

(6) Upon receipt of an approved waiver, the medical maintenance section will complete the repairs necessary and attach the approved waiver to the Work order.

(7) The medical maintenance OIC must sign all work orders that condition coded equipment for turn in.

-signed-
Chief, Medical Maintenance

COMBAT SUPPORT HOSPITAL
MEDICAL MAINTENANCE BRANCH

CUSTOMER ASSISTANCE MANUAL (External SOP)

“FORWARD AND READY!”

Date of Publication

COMBAT SUPPORT HOSPITAL
Fort Anywhere, Florida 12345-6789

14 June 2006

CUSTOMER ASSISTANCE MANUAL

MEDICAL MAINTENANCE

1. PURPOSE. This SOP supplements the instructions contained in *AR 40-61*, *AR 750-1* and *TB MED 750-2* detailing procedures to be followed in completing equipment maintenance, and prescribes disposition. It further provides guidance to clinical staff in proper operator level preventive maintenance, Scheduled Services, and established general maintenance policies and responsibilities.

2. SCOPE. The procedures outlined herein are applicable to all personnel assigned or attached to the Combat Support Hospital.

3. RESPONSIBILITIES. The Medical Maintenance Branch is responsible for the installation, repair, and preventive maintenance and calibration procedures necessary to insure proper functioning of all medical and dental equipment used in the Combat Support Hospital.

4. MANUAL REVIEW. All personnel will review this CUSTOMER ASSISTANCE SOP within 30 working days after reporting for duty and annually thereafter. Upon completion of this review, individuals will print their name, date and initial the cover sheet designated for this purpose.

5. DETAILED INFORMATION. Instruction on the various policies, are contained in the enclosed example memorandums.

6. Point of contact for the manual is the undersigned at 123-456-7890.

Super Warrant Officer
CW2, Medical Service
Chief, Medical Maintenance Branch

TABLE OF CONTENTS

Mister Enforcer III
MAJ, MS
Executive Officer

1. Purpose.

To provide medical equipment management guidance to clinical staff within the organization and non-organizational medical elements requiring maintenance support or assistance from the Combat Support Hospital.

2. Scope.

These procedures are applicable to all sections or activities requesting maintenance service from the CSH Medical Maintenance Branch.

3. Mission.

To ensure all medical equipment belonging to the Combat Support Hospital is fully mission capable. The Medical Maintenance Branch will provide unit level medical equipment maintenance services for all sections within the organization. The following table depicts the different Medical Materiel and Medical Equipment Sets associated with an MRI configured Corps level Combat Support Hospital.

08945A COMBAT SUPPORT HOSPITAL CORPS (MRI)

08960A 84 Bed Company

08547AA Early Entry Hosp

PAR	LIN	ERC	SET	SET TITLE	QTY
305	M23673	B	249	MES CHEM AGENT/2000	2
305	M25865	B	258	MES CHEM PATIENT/2000	1
305	M72084	A	M523	MMS MED MNT 84 BED CO	1
306	M73050	P	M308	MMS TRIEMT PREOPDEP/M	1
307	M08417	P	M302	MMS CENTRAL MAT SER/M	1
307	M13428	A	M542	MMS CMS SP AUG 84 BED	1
307	M72936	P	M301	MMS OP ROOM DEPMEDS/M	1
310	M09576	P	M309	MMS POST-OP ICU DEP/M	2
312	M08599	A	M310	MMS INTMDCARE WDDEP/M	1
313	M73254	A	M506	MMS PHARMACY 84 BED	1
314	M73482	A	M503	MMS LAB (GEN) 84 BED	1
314	M73732	A	M504	MMS LAB (LIQ BLD) 84B	1
315	M73175	A	M334	MMS XRAY LOWCAP DEP/M	1
315	M86675	P	M305	MMS XRAY DEPMED/M	1

08547AB 40 BED AUGMENTATION

PAR	LIN	ERC	SET	SET TITLE	QTY
317	M14517	A	M583	MMS MED SUP: 84 BED	1
318	M72868	A	M314	MMS ORTHO CAST CLINIC	1
318	M72423	A	M513	MMS MEDICAL SVC CLINIC: 84 BED	1
318	M31824	A	M316	MMS OB-GYN CLINIC	1
319	M08599	A	M310	MMS INTERMEDIATE CARE WARD	2

08948AB 164 Bed Company

PAR	LIN	ERC	UAC	NOMENCLATURE	QTY
204	M25865	B	258	MES CHEM AGENTS PATIENT DECON	2
204	M23673	B	249	MES CHEM AGENT PATIENT TRTMNT	3
204	M72152	A	M725	MMS MED MAINT; 164 BED	1
204	M14585	A	M783	MMS MED SUP; 164 BED	1
205	M73050	P	M308	MMS TRIAGE/EMERGENCY/PRE-OP	1
206	M72936	P	M301	MMS OR	2
206	M08417	P	M302	MMS CMS	2
206	M32074	A	M417	MMS ORTHO SURG AUG	1
206	M08951	A	M742	MMS CMS AUG: 164 BED	1
208	M72050	A	M312	MMS PT/OT	1
208	M31824	A	M316	MMS OB-GYN	1
208	M72868	A	M314	MMS ORTHO CAST	1
208	M72355	A	M713	MMS MED SVC; 164 BED	1
209	D43882	A	M374	DENTL MTL SET DENTAL X-RAY	1
209	D65926	A	M370	DENTL MTL SET GEN DENT	
209	D43836	A	M476	DENTAL MTL SET DENTAL HYG	1
211	M09576	P	M309	MMS POST-OP/ICU WARD	1
212	M08599	A	M310	MMS INTERMED CARE WARD	2
213	M73186	A	M706	MMS PHARMACY: 164 BED	7
214	M13275	A	M703	MMS LAB (GENERAL): 164 BED	1
214	M08849	A	M704	MMS LAB (LIQ BLD BNK): 164 BED	1
215	M73175	A	M334	MMS X-RAY LOW CAP PORT	1
215	M72300	P	M307	MMS X-RAY	1

4. References.

a. *AR 40-61, Medical Logistics Policies and Procedures*

b. *AR 220-1, Unit Status Reporting*

c. *AR 700-138, Army Logistics Readiness and Sustainability*

d. *AR 710-2, Inventory Management Supply Policy Below the Wholesale Level*

e. *AR 725-50, Requisitioning, Receipt, and Issue System*

f. *AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations*

g. *DA PAM 710-2-1, Using Unit Supply Systems (Manual Procedures)*

h. *TM 8-6500-001-10 PMCS, Medical Equipment PMCS Tables*

i. *TB 38-750-2, Maintenance Management Procedures for Medical Equipment (Forms*)

j. *TB MED 750-2, Medical Maintenance for MTOE Units*

5. Location And Contacting Us.

a. Medical Maintenance, located in Bldg. 1234, Productivity Lane, Fort Getrdone, NY.

b. Points of Contact

(1) OIC: CW2 Super Warrant, warrantS@garrison.army.mil, 123- 456-7890

(2) NCOIC: SSG Tough Stuff, stufft@garrison.army.mil, 123-456-6789

(3) 68A, MER Technician: SPC Fred G. All

(4) 68A, MER Technician: SPC Jane D. Snuffy

(5) 68A, MER Technician: SPC Joe P. Brain

c. Maintenance Shop Telephone Numbers
Commercial 123-456-7890/6789; DSN 444; FAX Ext: 5678

6. Hours Of Operation.

Normal Duty Hours for medical equipment maintenance are:

Monday	0900-1700
Tuesday	0900-1700
Wednesday	0900-1700
Thursday	1300-1700
Friday	0900-1700

7. Available Equipment Services.

a. Technical Inspections (TI) for issue of new equipment
b. Scheduled Services for Medical Equipment
c. Remedial Maintenance and Repairs for Medical Equipment
d. Technical Inspections (TI) for turn-in of old equipment
e. Special Services (SS)
(1) Training on Set-up and Use of Medical Equipment
(2) Staff Assistance Visits (SAVs)
f. Waiver of Maintenance Expenditure Limit (MEL)

8. Responsibilities of Unit Commanders, Sub-Hand Receipt Holders, and Clinical Staff.

a. Delegation of Authority Cards (Signature Cards):

Unit commanders must provide a copy of their Assumption of Command orders to the Medical Maintenance Branch. Unit Commanders must ensure that all sub-hand receipt holders of medical equipment provide a completed DA Form 1687, Notice of Delegation of Authority or (Signature Card). The Delegation of Authority card establishes authorized chain of custody for equipment submitted to and retrieved from the branch.

b. User Level Maintenance (DA Form 2404 or 5988E or Automated Form):

(1) Section NCO(s), clinical staff, and equipment operators are an integral part of the maintenance process. Operator maintenance is the keystone to an effective medical equipment maintenance program and is essential for keeping all clinical equipment in peak operating condition. Unit commanders must place sufficient emphasis and allocate adequate time for unit personnel to perform user level maintenance for medical equipment. Commanders must ensure that medical equipment maintenance is included in the unit's training schedule. Section NCO(s) and Clinical Staff must ensure proper maintenance is performed on a regular basis. Use DA Form 2404 or 5988E to record medical equipment deficiencies identified during operator/user level maintenance.

(2) Medical equipment operators must perform routine inspections to ensure that equipment is ready for use and reliable for its intended mission. Operator maintenance includes:

(a) Cleaning exterior surfaces and accessories;
(b) Accountability of operator manuals;
(c) Confirming accessories and supplies required for equipment operation are available and functioning;
(d) Inspecting, oiling or lubricating moving parts;
(e) Replacing blown light bulbs and minor accessories;
(f) Replacing worn rubber tubing or broken bottles;
(g) Seeking help from the medical maintenance branch for medical equipment problems that exceed user level maintenance authority.

Note: While directing operator maintenance, supervisors and staff need to beware of the clinic handyman (every clinic has one)! Only trained medical equipment repairers are authorized to perform repairs that involve taking the equipment apart.

(3). Operator/user replaceable parts. The operator's manual or technical manual normally clarifies operator's maintenance tasks. Generally, components, accessories, and parts that are easily accessible and don't require tools, test equipment or complex technical skills should be taken care of by the operator.

c. Training: It is the senior persons responsibility to ensure that all equipment operators are trained to use of all equipment in their section. Each ward master and/or section supervisor must always be cognizant of the following:

(1) Availability of operator's manuals and TM(s) for reference. If an operator's manual is missing, contact the equipment manufacturer to order the appropriate manual. If there are any questions or concerns about the proper version or issue of the manual, contact medical maintenance for assistance.

(2) Are operators trained to use the equipment? Ensure all operators are familiar with all equipment they may be required to use during patient care. The section NCO, clinical staff expert, or most experienced member of the section should train them as soon as possible. The Medical Maintenance Branch is available to assist with training on the proper operation of medical equipment items; this however does not include the clinical or diagnostic application of the equipment. Please provide a written request for equipment training well in advance so that medical maintenance staff (68As) may program training time into the training schedule and prepare to provide you with quality training.

d. Equipment Storage and Use: Equipment must be stored in a manner that prolongs its life and allows for safe retrieval, use, and/or shipment of all components or accessories at any given time. It is essential that when medical equipment is needed to save a soldier's life that all required components, accessories, and consumables are readily available. If your area has more than one make and model of the same equipment, keep the accessories separated and labeled. Using the wrong parts or accessories can result in equipment damage and/or patient injury. It is the clinic or section's responsibility to ensure that the correct types and quantities of supplies are readily available. Please consult the Organization Medical Supply Activity or Company Supply NCO for initial supply and re-supply procedures. (This is covered in the unit's Command Supply Discipline Program)

e. Life Cycle Management: The Medical Maintenance Branch will continue to support medical equipment so long as the means to repair the equipment are available. Periodically, medical equipment manufacturers discontinue product lines and eventually the availability of repair parts and accessories from the manufacturer cease to exist. If your medical equipment can't be repaired by our branch and we are unable to coordinate maintenance support through either DS/GS maintenance or USAMMA's depot level maintenance activities, it may be necessary to condition code (Code "H") your equipment and recommend replacement. Should this happen, the

unit commander and hand receipt holder will be notified by memorandum of the branch's recommendations. Once a condition Code "H" is given to equipment, it is up to the hand receipt holder, Unit Commander and BN S-4 to arrange for replacing the equipment with a new one.

f. Remember: when medical equipment requires repair, make sure a maintenance request is initiated and broken equipment is taken to the Medical Maintenance Branch in a timely manner. We can't repair something if we don't know it's broken.

9. Organization Maintenance Procedures Overview.

a. Technical Inspections (TI) for equipment Issue

New equipment requiring a technical inspection (TI) for Issue must have a Maintenance Request as well as a completed DA Form 3161, IAW DA PAM 710-2-1. The DA Form 3161 will let Maintenance Staff know which official hand receipt holder and to which section the equipment belongs allowing for inclusion of the item in the scheduled maintenance program.

b. Scheduled Services

(1) As the title depicts, scheduled services will be managed and performed on a scheduled basis. The purpose of routinely scheduling maintenance services is to preclude equipment failures that may be costly, both in resources and at the expense of the patient. Scheduled maintenance will be performed during the month it is scheduled. The Annual Scheduled Services Summary Report is published and reviewed with Unit Commanders for inclusion in the training schedule.

(2) Preventive Maintenance Checks and Services (PMCS) will be performed IAW equipment TM(s) or Original Equipment Manufacturer (OEM) literature. Scheduled Services include the following types of inspections:

(a) Preventive Maintenance Checks and Services (PM)
(b) Electrical Safety Test (ST)
(c) Calibrations or Calibration Verification and Certification (CL)

(3) The medical maintenance branch will notify unit commanders and section supervisors of upcoming scheduled maintenance requirements during maintenance meetings one month prior to the month their services are scheduled. If after the 1st week, availability of the equipment is not determined or provided for scheduled services by the hand receipt holder or designated representative, a memorandum with a list of all equipment not available for service will be sent to the appropriate hand receipt holder(s) and the appropriate Company Commander, notifying the responsible parties that services are due and that the equipment is considered misplaced or not located if it's not made available.

(4). Hand receipt holders are suspensed by the 15th of the month services are due to make the equipment available to the Medical Maintenance personnel. Every effort should be made to comply. A written explanation must be

provided to the Chief, Medical Maintenance Branch if there are extenuating circumstances for which the suspense cannot be met. After the suspense period, the Company Commander, BN S4 and CSH Executive Officer will be informed so that appropriate administrative actions may be initiated IAW AR 735-5. At this point the hand receipt holder has had 45 days fair notification to determine the equipments location and make the equipment available for scheduled services. Records will be appropriately documented to annotate historical patterns of failure to comply and inconsistencies in property maintenance and accountability. The action code NL will be documented to the maintenance history for not located equipment.

(5) Scheduled services are documented using a Scheduled Services Planning Report When scheduled services are completed the department/section staff will be provided copies of documentation identifying the extent of services performed and the status of their equipment. A copy of all documentation will be retained on file in the Medical Maintenance Branch.

c. Unscheduled Service or Repairs (RE)

(1) Equipment requiring remedial repair will be reported to the medical maintenance branch as soon as the equipment is determined to be in the state of disrepair.

(2) The clinical staff is responsible for ensuring equipment is cleaned and disinfected before submitting a maintenance request for repair or service. Equipment not meeting cleanliness standards may not be accepted.

(3) Unscheduled work requests will be assigned a work order number and the receipt copy of the work order will be returned to the section NCO or delegated representative. The receipt copy of the work order is the property accountability document for portable equipment brought to the medical maintenance shop and must be surrendered when the equipment is picked up. If the receipt copy is lost, a memorandum from the hand receipt holder or delegated representative is required prior to picking up the equipment.

(4) When the maintenance service is completed, a copy of the work order will be provided documenting the extent of services performed and the status of the equipment. Retain this in your section's files for 1 year.

d. Technical Inspections (TI) for Equipment Turn In

Medical equipment that is excess, being replaced or determined to be no longer required must be technically inspected by medical maintenance personnel to determine the proper condition code prior to being turned in through the supply system. In order to properly evaluate the serviceability and condition of the equipment, all components and accessories (i.e., kits, cables, transducers, battery packs, manufacturer's literature, etc.) needed to operate the equipment are will be required to be included when submitted to maintenance.

e. Special Services (SS)

(1) TIs for Re-issue or Lateral Transfer

(2) Waiver of Maintenance Expenditure Limit (MEL)

(3) Staff Assistance Visits SAV(s)

f. Equipment Evacuated for DS/GS Support

Unserviceable but economically reparable equipment beyond our capabilities may need to be evacuated to the next higher level of maintenance. The U.S. Army Medical Materiel and Research Command has four depot level operations that also function as regional medical equipment maintenance management cells. When support coordination is necessary, maintenance will contact the regional manager associated with our support region to determine the best available support. Dental hand pieces, microscopes, x-ray tubes and high tension cables will automatically be sent to the appropriate Maintenance Operation Division (MOD) for repair and return. Un-economically reparable equipment will be condition coded *IAW AR 725-50*.

g. Staff Assistance Visits

The medical maintenance branch is available to provide Staff Assistance Visits (SAV) upon the sections request. It is in the best interest of the organization to ensure leadership personnel are familiar with maintenance policies and procedures. Please notify the medical maintenance branch so the appropriate time and resources may be scheduled.

10. Medical Standby Equipment Program (MEDSTEP).

a. To assist in preserving the availability of critical medical equipment, the AMEDD has established a Medical Standby Equipment Program (MEDSTEP). The program involves positioning end items, components, assemblies, and sub-assemblies with deployed DS/GS maintenance organizations (typically MEDLOGs) to support theater operations.

b. When the medical maintenance supervisor determines repair of a critical equipment item requires extensive time or resources, the medical maintenance branch, on a case-by-case bases, may coordinate to obtain MEDSTEP assets from the supporting DS/GS medical maintenance organization. MEDSTEP is ordinarily DX'd to reduce transportation requirements.

c. MEDSTEP will only be DX'd for repairable medical equipment. MEDSTEP will not be provided for uneconomically repairable equipment, nor will it be provided to modernize a unit.

d. Medical Maintenance will contact DS/GS or Depot support to confirm availability of MEDSTEP. MEDSTEP is a "supply" item for the Support Activities and remains on the Stock Record Account until required by a supported Unit. Once MEDSTEP is DX'd, the unit must provide the DA FORM 3161 to the PBO for a serial number change. Your PBO will do the Administrative Adjustment Report (AAR) to document changes to Property Records and your Hand Receipt. Retain the DA FORM 3161 and AAR in your HR folder.

MEDICAL MAINTENANCE SCHEDULED SERVICES SUMMARY BY MONTH

08960A 84-Bed Company					
08547AA EARLY ENTRY HOSP					
LIN	SET	SET TITLE	MONTH	MONTH2	POC
M23673	249	MES CHEM AGENT/2000	JAN		SSG Sarin
M23673	249	MES CHEM AGENT/2000	JAN		SSG Mustard
M25865	258	MES CHEM PATIENT/2000	JAN		SSG Compound
M73050	M308	MMS TRIEMT PREOPDEP/M	APR		SSG Prepare
M08417	M302	MMS CENTRAL MAT SER/M	OCT		SSG Sterile
M13428	M542	MMS CMS SP AUG 84 BED	OCT		SSG Sanitary
M72936	M301	MMS OP ROOM DEPMEDS/M	FEB	AUG	SSG Cutter
M09576	M309	MMS POST-OP ICU DEP/M	MAR	SEP	SSG Healer
M09576	M309	MMS POST-OP ICU DEP/M	MAY	NOV	SSG Helping
M08599	M310	MMS INTMDCARE WDDEP/M	JUN		SSG Hurtone
M73254	M506	MMS PHARMACY 84 BED	OCT		SSG Quaalude
M73482	M503	MMS LAB (GEN) 84 BED	JUN		SSG Protein
M73732	M504	MMS LAB (LIQ BLD) 84B	JUN		SSG Hemophilic
M73175	M334	MMS XRAY LOWCAP DEP/M	APR	OCT	SSG Roentgen
M86675	M305	MMS XRAY DEPMED/M	APR	OCT	SSG Emission

08547AB - 40-BED AUGMENTATION					
LIN	SET	SET TITLE	MONTH	MONTH2	POC
M14517	M583	MMS MED SUP: 84 BED	OCT		SSG Procure
M72868	M314	MMS ORTHO CAST CLINIC	JUL		SSG Bone
M72423	M513	MMS MEDICAL SVC CLINIC: 84 BED	JUL		SSG Bender
M31824	M316	MMS OB-GYN CLINIC	JAN		SSG Childs
M08599	M310	MMS INTERMEDIATE CARE WARD	JAN		SSG Heart
M08599	M310	MMS INTERMEDIATE CARE WARD	JUL		SSG Raitt

In accordance with the FORSCOM Hospital Optimization Standardization Program (HOSP), the 164 Bed Company, TOE 08948AB, of the Combat Support Hospital has been located to Sierra Army Depot for storage until required to be deployed. Maintenance of the 164 Bed Co will be conducted on an annual basis during the month of TBD. The maintenance schedule for this portion of the CSH will be implemented once FORSCOM determines the maintenance Month.

DEPARTMENT OF THE ARMY
HEADQUARTERS, COMBAT SUPPORT HOSPITAL
FORT ANYWHERE, FLORIDA 12345

REPLY TO
ATTENTION OF

S: 01 October 2004

MCMR-MMM-MM (40-61i) 15 September 2004

MEMORANDUM THRU Commander, Medical Company

FOR NCOIC, Operating Room C (03)

EXAMPLE
Scheduled Service
Notification

SUBJECT: Notification of Scheduled Services for October 2004

1. Reference. TB MED 750-2, dated April 2005, para 1-8, AR 40-61, dated 28 January 2005.

2. Medical equipment belonging to Operating Room is scheduled for services during the month of October 2004. The enclosed list of equipment requires service to verify accuracy of operation. Coordinate with the organization's Medical Maintenance Branch NCOIC by the suspense to have the equipment [illegible] scheduled for services. Please plan time in your unit's training calendar.

3. Prior to medical maintenance personnel attempting to perform organization level service, please ensure the following user/operator level tasks are accomplished.

a) Accountability. Ensure the serial numbers for each item matches the number on the enclosed list. All accessories that are required to operate the equipment must accompany the equipment. Coordinate with medical maintenance personnel to ensure each item is made available for scheduled services.

b) Operator Maintenance. Perform general cleaning, function checks and operator maintenance for each item, documenting deficiencies in the section's workbook of DA Form 2404(s). Initiate a work request for items that require repairs. Note any missing or broken accessories.

4. The Medical Maintenance Branch personnel are available to assist with training of clinical staff on equipment set-up and capabilities if needed. Please coordinate training requirements in advance with the Chief, Medical Maintenance Branch so that training may be properly planned and executed.

5. Maintain this memo in the section supervisor's file. POC is the undersigned at 456-7890.

Encl
As

Medical Maintenance Officer/NCO
CW2, MS
Chief, Medical Maintenance Branch

CF:
Commander, MED CO

DEPARTMENT OF THE ARMY
HEADQUARTERS, COMBAT SUPPORT HOSPITAL
FORT ANYWHERE, FLORIDA 12345

REPLY TO
ATTENTION OF

S: 1 September 2004

MCMR-MMM-MM (40-61f) 16 August 2004

EXAMPLE

Supply Condition Code "H"

MEMORANDUM THRU Commander, Medical Company

FOR Hand Receipt Holder for

SUBJECT: Record of Condition Code and Disposition Instructions for Medical Equipment

1. References. AR 725-50 dated 15 Nov 1995 and DOD 4160.21-M Defense Disposal Manual

2. Purpose. To provide a written record of supply condition code of medical equipment and provide appropriate disposition instructions for Unit Commander, Hand Receipt Holder, and Unit Supply NCO.

3. The Medical Maintenance Branch has determined that the following medical equipment is no longer repairable and must receive a Supply Condition Code “H” designation.

LIN: M79195, NSN: 6515014235877, NOMENCLATURE: VITAL SIGNS MONITOR MODEL: 106EL, SERIAL NUMBER: TB07375, REPAIR COST: $6,300.00, REPLACEMENT COST: $8,687.65

4. The listed equipment must be removed from the hand receipt holder’s records in ULLS-S4 and turned-in to DRMO by the Unit Supply NCO. Turn-in to DRMO must take place within 120 days from the date on this memo.

5. The Medical Supply Activity must order a brand new item to replace the item that is turned-in. Once received, the new item must be place on the hand receipt by the Unit Supply NCO, and a technical inspection for issue must be completed prior to pick-up by the section NCO for replacement.

6. Point of contact is the undersigned at 456-7890.

Medical Maintenance Officer
CW2, Medical Service
Chief, Medical Maintenance Branch

CF:
S-4, Medical Logistics Officer
Company Commander, MED CO

DEPARTMENT OF THE ARMY
HEADQUARTERS, COMBAT SUPPORT HOSPITAL
FORT ANYWHERE, FLORIDA 12345

REPLY TO
ATTENTION OF

S: 1 October 2004

MCMR-MMM-MM (40-61) 16 September 2004

EXAMPLE

Delegation of Authority

MEMORANDUM THRU Commander, Medical Company

FOR Medical Company Platoon Sergeants

SUBJECT: Delegation of Authority Cards (DA Form 1687)

1. References. AR 710-2-1 dated 31 Oct 1997, AR 40-61 dated 28 January 2005.

2. Purpose. To provide guidance for accountability and chain of custody for non-expendable medical equipment that is delivered to and picked up from the Medical Maintenance Branch for services.

3. The Medical Maintenance Branch must have an updated delegation of authority card on file for each primary hand receipt holder of non-expendable medical equipment. The delegation of authority cards will clearly identify who is sub-hand receipted medical equipment and responsible for coordinating equipment services for each clinical section within the hospital. This responsibility is normally delegated to section supervisors and will be indicated on each DA Form 1687.

4. Regulation requires that if a hand receipt holder or sub-hand receipt holder will be away from the unit more than 30 consecutive days, a change in hand receipt holder responsibility should take place. Whenever there is a change in the primary or sub-hand receipt holder, delegation of authority cards will be updated so that the Medical Maintenance Branch can coordinate services with the appropriate points of contact.

5. Each section must provide a DA Form 1687 to the Medical Maintenance Branch by the above suspense date.

Medical Maintenance Officer
CW2, Medical Service
Chief, Medical Maintenance Branch

CF:
CDR

XO

DEPARTMENT OF THE ARMY
HEADQUARTERS, COMBAT SUPPORT HOSPITAL
FORT ANYWHERE, FLORIDA 12345

REPLY TO
ATTENTION OF

MCMR-CSH-CDR 14 June 2006

MEMORANDUM FOR ALL CSH Personnel

SUBJECT: Medical Equipment Maintenance Program Commander's Directive

1. Purpose. To inform leaders and staff within my command of my expectations as it pertains to medical equipment readiness and the importance of ensuring that the right medical equipment is available for patient care at the right place at the right time. It is critical that all medical equipment affiliated with this medical treatment facility be maintained in a fully mission capable (FMC) status.

2. Goal. To implement an effective unit level medical equipment maintenance program that includes all medical equipment associated with this organization's healthcare mission.

3. An effective unit maintenance program includes three key elements; operator maintenance, scheduled PMCS, and remedial maintenance.

a. Operator maintenance is the cornerstone to an effective unit level maintenance program, hence the most critical element. Section leaders/supervisors will:

(1) Ensure all equipment operators/users are trained and familiar with all medical equipment with which they may come in contact while performing patient care.

(2) Ensure all medical equipment within their charge is accounted for and routinely inspected for operability to include verifying cleanliness, availability of all components and accessories, and proper storage conditions.

b. All medical equipment utilized by this CSH will be included in the medical maintenance scheduled services program. The senior medical equipment repairer will:

(1) Ensure all maintenance significant medical equipment is documented in the Standard Army Management Information System and has a maintenance historical record.

(2) Maintain schedules determining when the hospital's medical equipment is scheduled to be serviced by section/hand-receipt.

(3) Coordinate the performance of scheduled maintenance services IAW established maintenance schedules. Deviations from established PMCS schedules will be documented and reviewed at the monthly training briefing.

(4) Document performance of services and apprise the Executive Officer and the Commander of shortfalls and significant equipment accountability and maintenance issues.

c. All personnel will maintain a constant awareness of equipment status and ensure that any and all medical equipment utilized for patient care is appropriately serviced and functioning correctly. Any equipment that is not functioning correctly will immediately be reported to the medical maintenance branch. Medical maintenance will make every effort to effect repairs in a timely and efficient manner.

4. The point of contact is the CSM, XO or the undersigned at 456-7890.

/- Original Signed by Hospital Commander -/
HOSPITAL COMMANDER
COL, MC
Commanding

APPENDIX F. SPECIAL PURPOSE TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE-SP) TABLES

The following tables may be used as a reference to determine the types and quantities of **medically unique** Special Purpose Test, Measurement, and Diagnostic Equipment (TMDE-SP) each type organization is authorized.

COMBAT SUPPORT HOSPITAL, MEDICAL COMPANY				
NSN	**Material description**	**LIN**	**UI**	**Quantity**
6625012078270	TEST SET ELECTRICAL		EA	1
6685012927873	THERMOMETER SELF-INDI		EA	1
6515014792355	ANALYZER INTRAVENOUS		EA	1
6630014876987	ANALYZER GAS ANESTHET		EA	1
6525015020504	METER X-RAY CALIBRA		EA	1
6515015048537	PULSE OXIMETER,SIMU		EA	1
6515015352790	SIMULATOR SENSOR		EA	1
8145015357927	SHIPPING AND STORAG		EA	2
8145015358067	SHIPPING AND STORAG		EA	2
8145015358237	SHIPPING AND STORAG		EA	1
6515014491420	ANALYZER DEFIB & TRAN	A83433	EA	1
6695014916615	CALIBRATOR-ANALYZR	C61523	EA	1
6695013030294	METER FOOT CANDLE	M38443	EA	1
6625015042654	ULTRASOUND WATTMTR	R95994	EA	1
6625012983830	SIMULATOR MED FUNCTIO	S56720	EA	1
6515014382409	TEST SET ELECTROSUR	T90883	SE	1
6515014491423	ANALYZER NONINVAS BLD	Z07763	EA	1
6515014491421	TESTER VENTILATOR PTB	Z28075	EA	1
6625014489577	OSCILLOSCOPE DIGITAL	Z47763	EA	1
	COMPUTER		EA	1

MEDICAL COMPANY W/68A AUTHORIZATION (FSB, MSB, BSB, ASMB)				
NSN	**Material description**	**LIN**	**UI**	**Quantity**
6625012078270	TEST SET ELECTRICAL		EA	1
6685012927873	THERMOMETER SELF-INDI		EA	1
6625012983830	SIMULATOR MED FUNCTIO	S56720	EA	1
6515014382409	TEST SET ELECTROSUR	T90883	SE	1
6625014489577	OSCILLOSCOPE DIGITAL	Z47763	EA	1
6515014491420	ANALYZER DEFIB & TRAN	A83433	EA	1
6515014491421	TESTER VENTILATOR PTB	Z28075	EA	1
6515014491423	ANALYZER NONINVAS BLD	Z07763	EA	1
6695014916615	CALIBRATOR-ANALYZR	C61523	EA	1
6525015020504	METER X-RAY CALIBRA		EA	1
6515015048537	PULSE OXIMETER,SIMU		EA	1
6515015352790	SIMULATOR SENSOR		EA	1
8145015357927	SHIPPING AND STORAG		EA	2
8145015358067	SHIPPING AND STORAG		EA	2
8145015358237	SHIPPING AND STORAG		EA	1
	COMPUTER		EA	1

MEDLOG BN (Forward)				
NSN	MATERIAL DESCRIPTION	LIN	UI	QUANTITY
6625012078270	TEST SET ELECTRICAL		EA	4
6685012927873	THERMOMETER SELF-INDI		EA	4
6625012983830	SIMULATOR MED FUNCTIO	S56720	EA	4
6695013030294	METER FOOT CANDLE	M38443	EA	4
6515014382409	TEST SET ELECTROSUR	T90883	SE	4
6625014489577	OSCILLOSCOPE DIGITAL	Z47763	EA	11
6515014491420	ANALYZER DEFIB & TRAN	A83433	EA	4
6515014491421	TESTER VENTILATOR PTB	Z28075	EA	4
6515014491423	ANALYZER NONINVAS BLD	Z07763	EA	4
6515014792355	ANALYZER INTRAVENOUS		EA	2
6630014876987	ANALYZER GAS ANESTHET		EA	2
6695014916615	CALIBRATOR-ANALYZR	C61523	EA	4
6525015020504	METER X-RAY CALIBRA		EA	4
6625015042654	ULTRASOUND WATTMTR	R95994	EA	2
6515015048537	PULSE OXIMETER,SIMU		EA	4
6515015352790	SIMULATOR SENSOR		EA	4
8145015357927	SHIPPING AND STORAG		EA	8
8145015358067	SHIPPING AND STORAG		EA	8
8145015358237	SHIPPING AND STORAG		EA	4
	COMPUTER		EA	4

MEDLOG BN (Rear)				
NSN	**Material description**	**LIN**	**UI**	**Quantity**
6625012078270	TEST SET ELECTRICAL		EA	6
6685012927873	THERMOMETER SELF-INDI		EA	6
6625012983830	SIMULATOR MED FUNCTIO	S56720	EA	6
6695013030294	METER FOOT CANDLE	M38443	EA	6
6515014382409	TEST SET ELECTROSUR	T90883	SE	6
6625014489577	OSCILLOSCOPE DIGITAL	Z47763	EA	11
6515014491420	ANALYZER DEFIB & TRAN	A83433	EA	6
6515014491421	TESTER VENTILATOR PTB	Z28075	EA	6
6515014491423	ANALYZER NONINVAS BLD	Z07763	EA	6
6515014792355	ANALYZER INTRAVENOUS		EA	4
6630014876987	ANALYZER GAS ANESTHET		EA	4
6695014916615	CALIBRATOR-ANALYZR	C61523	EA	6
6525015020504	METER X-RAY CALIBRA		EA	6
6625015042654	ULTRASOUND WATTMTR	R95994	EA	4
6515015048537	PULSE OXIMETER,SIMU		EA	6
6515015352790	SIMULATOR SENSOR		EA	6
8145015357927	SHIPPING AND STORAG		EA	10
8145015358067	SHIPPING AND STORAG		EA	10
8145015358237	SHIPPING AND STORAG		EA	8
	COMPUTER		EA	6

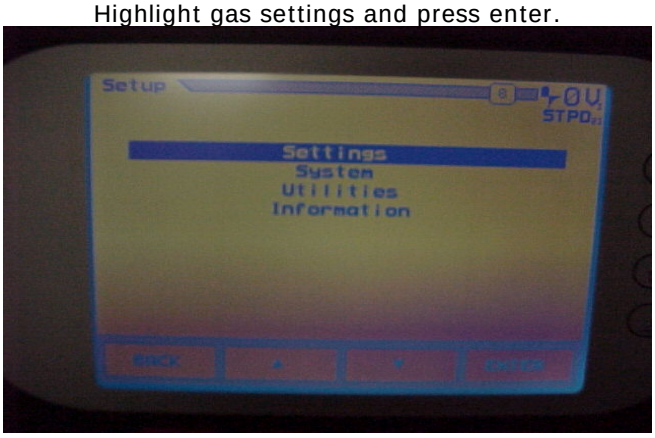
DENTAL COMPANY W/68A AUTHORIZATION				
NSN	**Material description**	**LIN**	**UI**	**Quantity**
6625012078270	TEST SET ELECTRICAL		EA	1
6685012927873	THERMOMETER SELF-INDI		EA	1
6625014489577	OSCILLOSCOPE DIGITAL	Z47763	EA	1
6525015020504	METER X-RAY CALIBRA		EA	1
8145015357927	SHIPPING AND STORAG		EA	2
	COMPUTER		EA	1

APPENDIX G. EXTERNAL O_2 REGULATOR VERIFICATION

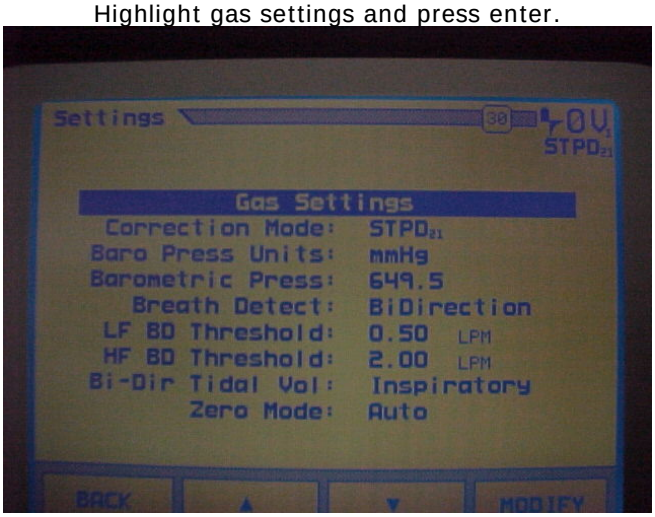
Install External O_2 Regulator to H or K size Oxygen cylinder.
Make sure cylinder has 250 - 3000 psi.

Install one end of Oxygen hose to the O_2 regulator output connector.
Setup VT Plus to read oxygen pressure.
Power up and let it zero after 5 minutes.
Press the pressure test mode button.
Press the setup button.
Highlight settings and press enter.

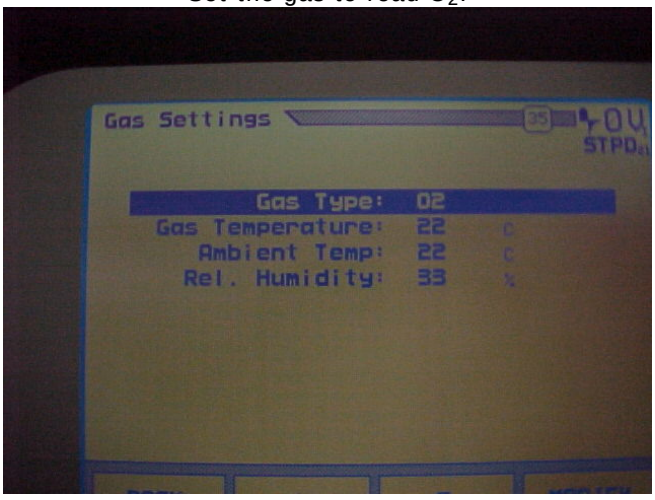
Highlight gas settings and press enter.



Highlight gas settings and press enter.

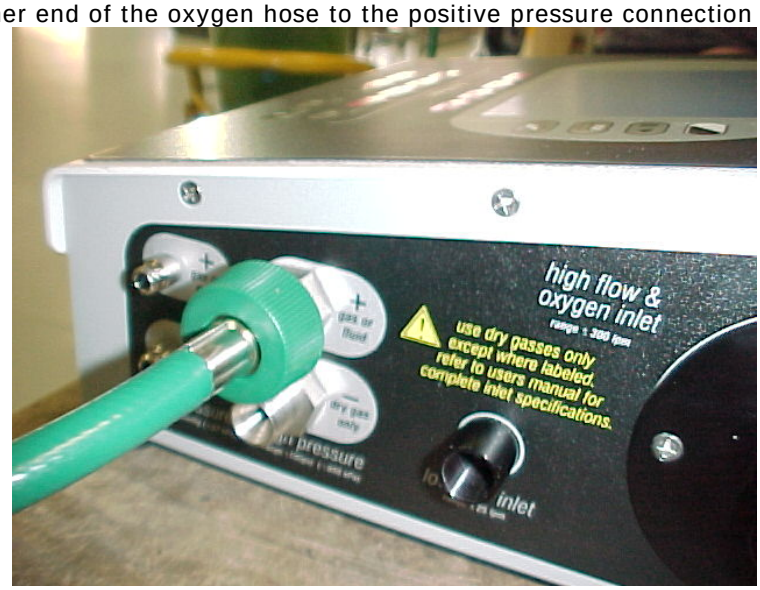


Set the gas to read O_2.



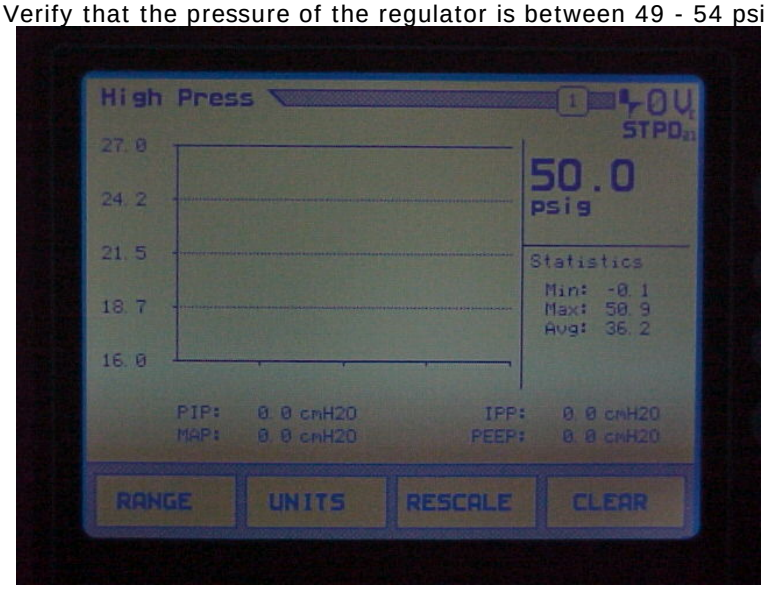
Press back until in the pressure test mode again.

Install the other end of the oxygen hose to the positive pressure connection of the VT Plus.



Open the oxygen (H or K) cylinder.

Verify that the pressure of the regulator is between 49 - 54 psi.



Disconnect the oxygen hose from the O_2 regulator.
Disconnect the O_2 regulator from the oxygen cylinder.

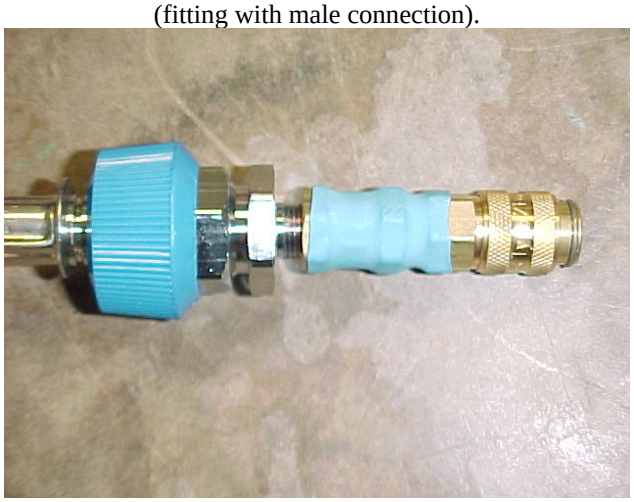
APPENDIX H. EXTERNAL N_2O REGULATOR VERIFICATION

Connect N_2O cylinder adapter to H or K size cylinder of nitrous oxide.

Connect external N_2O regulator to N_2O cylinder adapter.

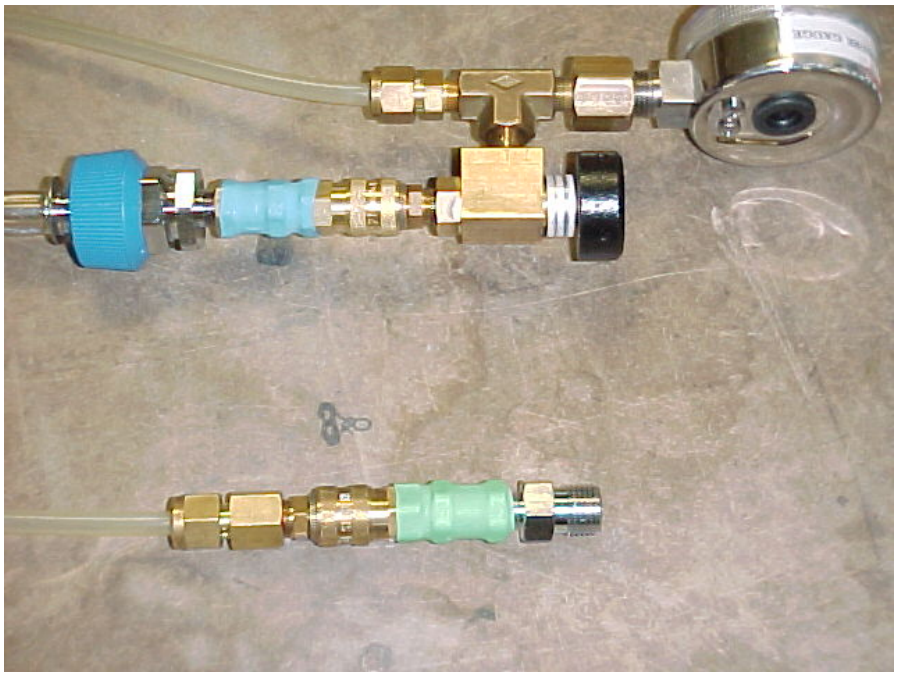
Connect one end of a blue N_2O hose to the regulator output connector.

Connect the other end of the blue N_2O hose to the N_2O fitting from the Narkomed Kit Part # 4114807 (fitting with male connection).

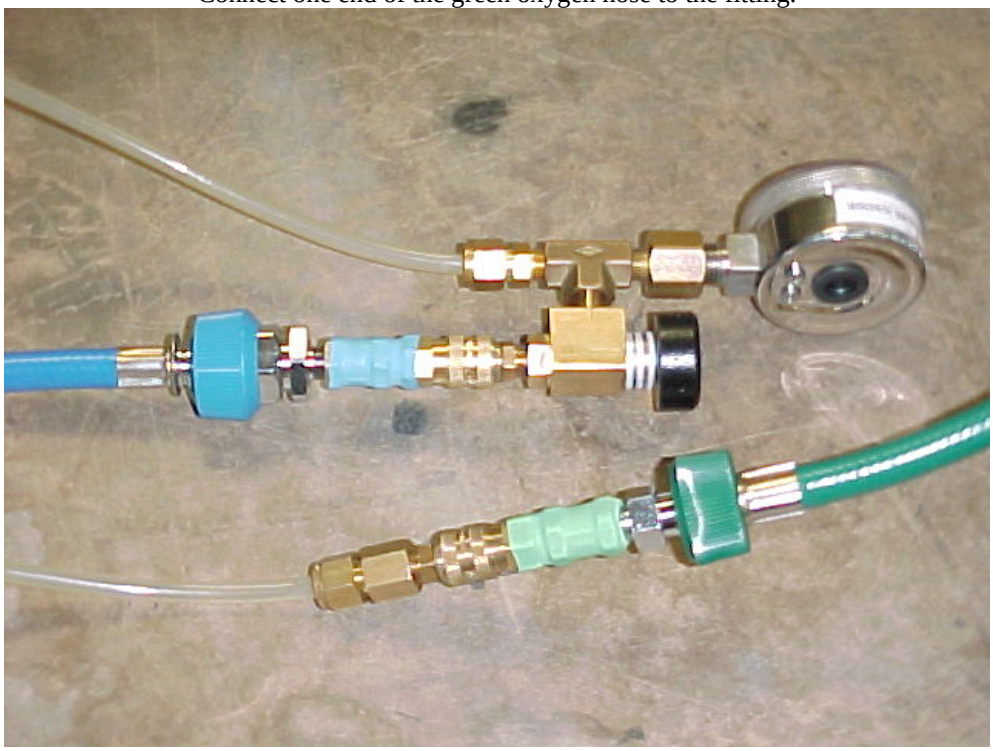


Connect the High Pressure Test Gauge to the N_2O fitting.

Connect the hose of the High Pressure Test Gauge to male oxygen fitting from the Narkomed Kit Part #4114807.

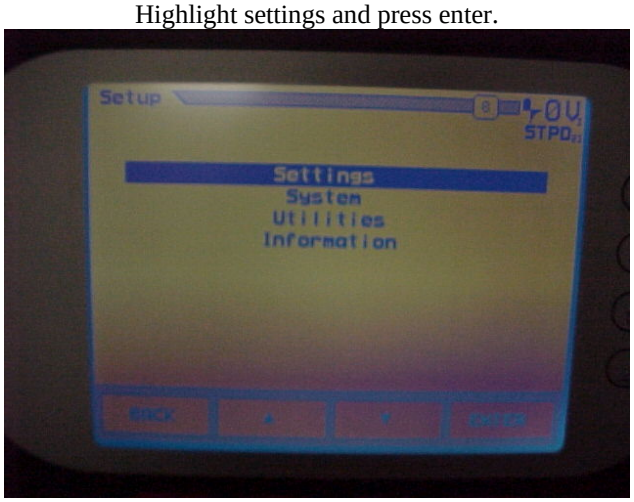


Connect one end of the green oxygen hose to the fitting.

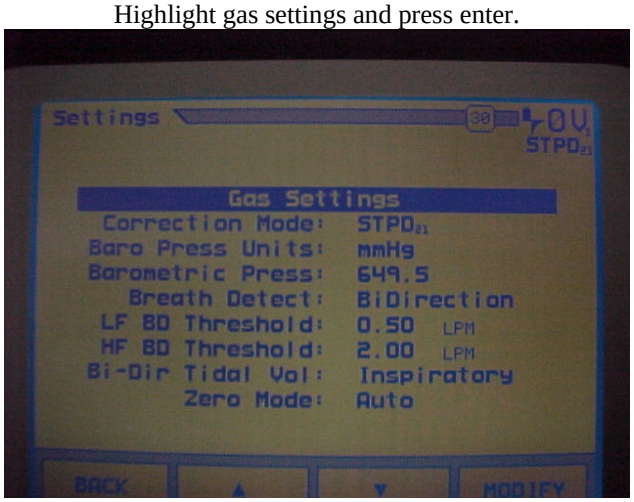


Setup the VT Plus to read N_2O.
Power up and let it zero after 5 minutes.
Press the pressure test mode button.

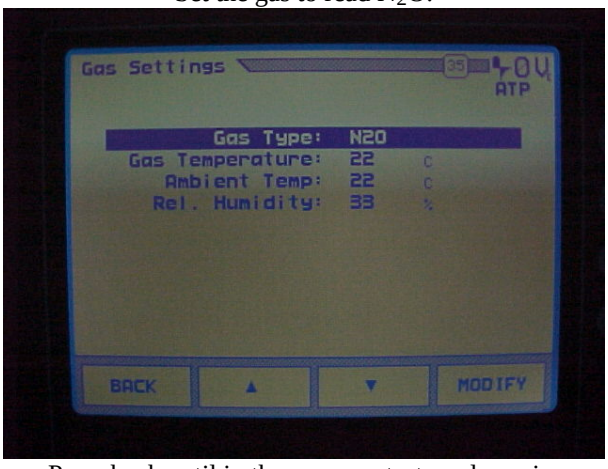
Press the setup button.
Highlight settings and press enter.



Highlight gas settings and press enter.



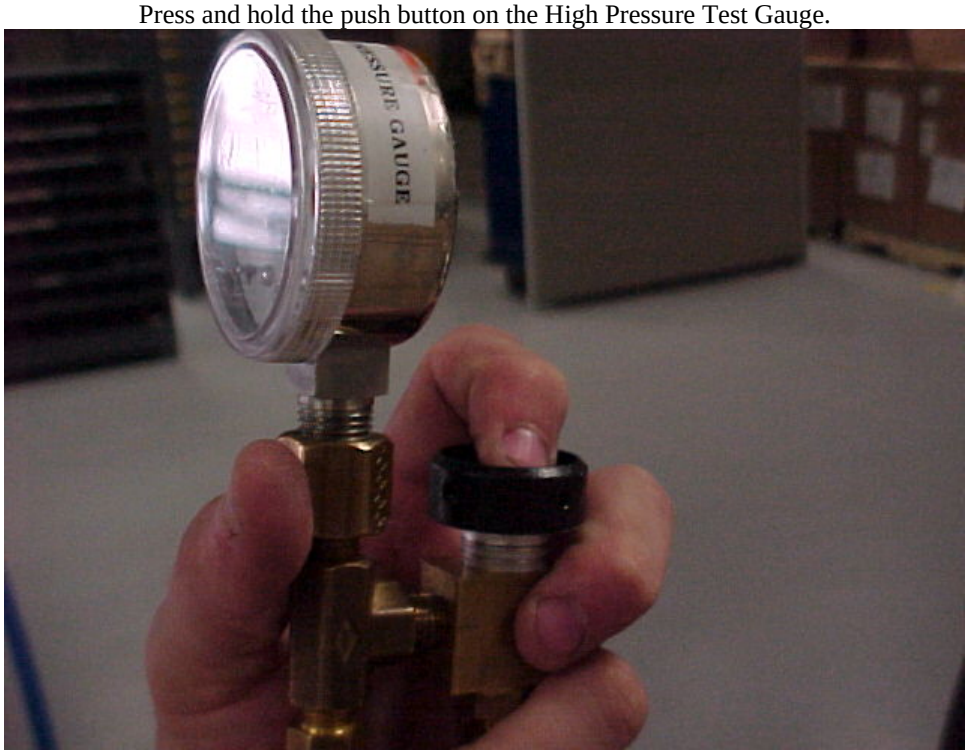
Set the gas to read N_2O.



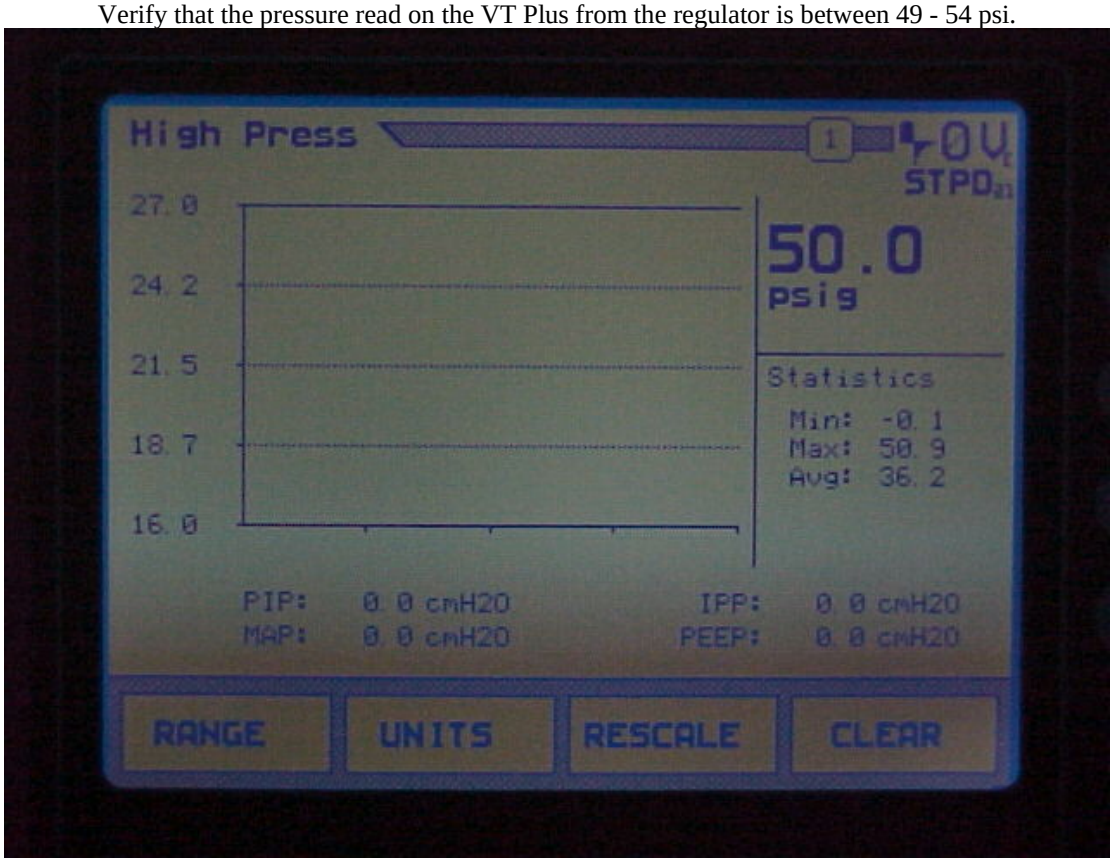
Press back until in the pressure test mode again.

Connect the other end of the oxygen hose to the positive pressure connection of the VT Plus.

Open the N_2O (H or K) cylinder.
Press and hold the push button on the High Pressure Test Gauge.



Verify that the pressure read on the VT Plus from the regulator is between 49 - 54 psi.



Disconnect all fittings, hoses, and components of this test and return to proper location.

APPENDIX I. PUMP, INFUSION, 6515-01-486-4310, DISPLAY PROBLEMS

A. There have been some noted problems with some of the newer Alaris Infusion Pump Displays. These display problems include discoloration of the pixels, inconsistent dark and light color and uneven (blotchy) polarization, and shadows of the previous screen affecting the performance and bringing into question the reliability of the LCD. It has been concluded that the problems are common to the newer Solomon LCD.

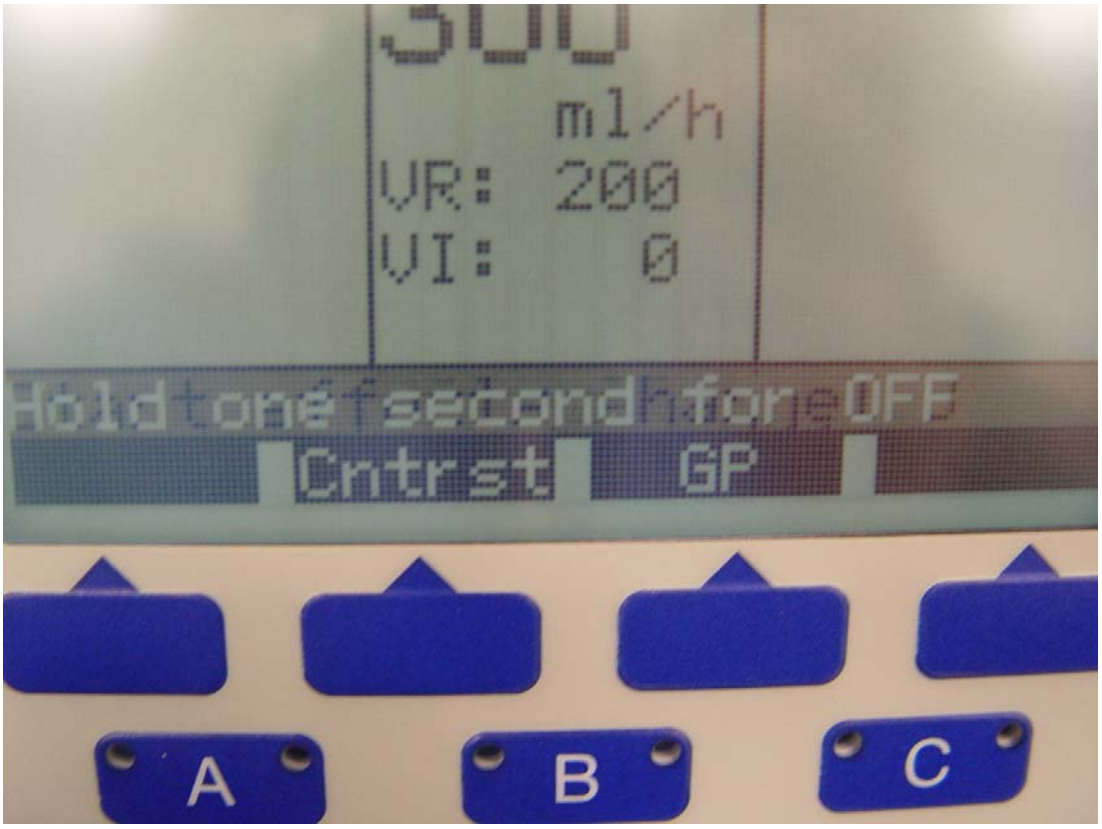
B. Cardinal Health Alaris recognizes this problem and has agreed to perform the necessary circuit repair for any units demonstrating this problem. The following procedure should be considered by medical equipment repairers to test Alaris Infusion Pumps. This guideline **does not** replace the manufacturer's procedures for testing or servicing their product.

1. **Turn on the unit** and wait 20 minutes for the display to warm up.

2. Press **ON/OFF** button briefly to see the text "**HOLD ONE SECOND FOR OFF"** displayed in clear letters highlighted by a black background of solid dark pixels. Examine the dark background of the display for any pixels discoloration to include any inconsistent dark and/or light color as well as dark and/or light blocks of pixels throughout the highlighted section. Also look for a shadow of the previous screen behind the **HOLD ONE SECOND FOR OFF** which reads **START AFFECTS CHANNEL C.** The color uniformity of the pixels in question will blend on the screen within approximately 30 seconds and will start to appear dark and inconsistent in color throughout the display (each unit may be different).

3. Figure I-1 demonstrates multiple text "messages" display simultaneously.

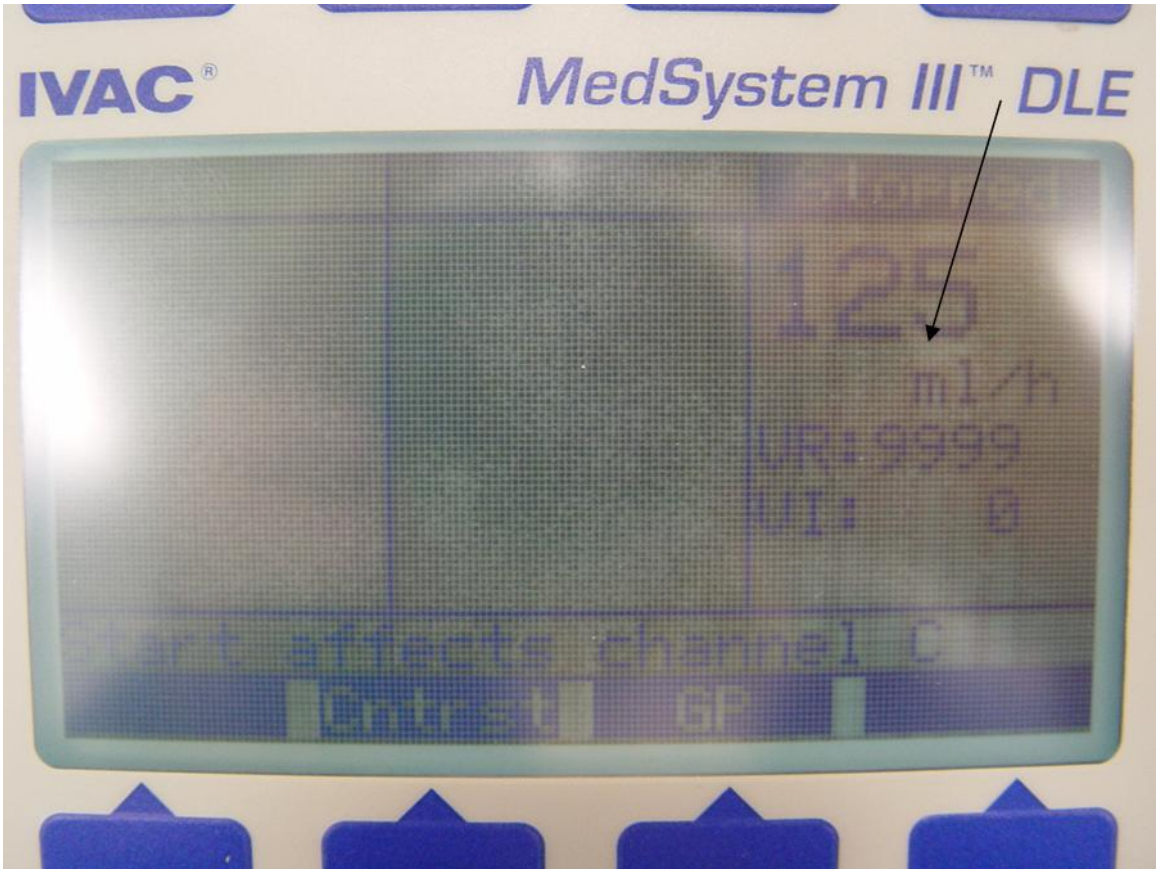
Figure I-1. SIMULTANEOUS MESSAGE DISPLAY



4. With the LCD set to lowest contrast setting, when turning unit off, the text string “Start effects channel C” is still visible beneath new text string “Hold one second for OFF”. This effect does not occur if unit is powered on and off within approximately 10 seconds. However when allowed to sit for some time (sometimes as short as 20 seconds) and then turned off, residual pixilated data from previous text string is visible during power down.

5. Figure I-2 demonstrates the uneven (blotchy) polarization. This dark contrast effect appears to be common on all units tested using a Solomon LCD, but is not found when LCD is replaced with the older Optrex LCD.

Figure I-2. Inconsistent And Blotchy Display



APPENDIX J. REFRIGERATOR, BLOOD, 4110-01-506-0895, PMCS PROCEDURES

1. The following is a list of TMDE required for the complete PMCS of the ACUTEMP model: HMC-MIL-1 Blood Refrigerator unit.

TMDE ITEM REQUIRED	TMDE ITEM USED
Digital Thermometer	
Safety Analyzer	
Computer (for data log downloads)	

2. This item requires a DA Label 2163 (CVC) with a Frequency of "A" and code of "I".

Note: When unit is in storage, every attempt should be made to ensure the batteries are charged IAW the manufacturer's recommendations.

3. PMCS Checklist

a. Visual checks

(1) Check for NSN label. The item may or may not have a label on the side.

(2) Check for external/internal damage

(3) Verify that all accessories are available.
(a) Stainless Steel blood bag baskets: one set of 10 each. (check for sharp burs on the basket and shave as necessary)
(b) 40 amp hour battery set, two 20 amp hour batteries: set of 2 each
(c) AC power cord
(d) DC power cord
(e) Operation and Maintenance manuals (hard copy 1 each)
(f) Service and Repair manual (hard copy 1 each)
(g) Operation and Service Manual on CD (1 each)
(h) Service and Repair manual on CD (1 each)
(i) Hemalog software CD (1 each)
(j) Sponge (1 each)
(k) Screwdriver (1 each)
(l) Replacement filters (10 each)

(4) Inspect unit's LCD display which should be centered in the window.

(5) Inspect unit's LED display, it should be clearly visible without any obstructions. The manufacturer and USAMMA have determined that visibility of ¾ of the circle on the LED is the minimum acceptable. It was agreed that the items will be no less than ¾ of the LED circular area.

(6) Inspect unit for missing internal blood baskets.

(7) Inspect unit's exterior for missing hardware such as missing vents or filters.

(8) Inspect unit's latches and verify they are able to close. **CAUTION: Some are too far away from each other which will cause excessive strain on the plastic components of the refrigerator.**

(9) Inspect Lithium battery cover holder for broken clips. **CAUTION: These clips enable the cover to latch to the holder itself and are susceptible to breaking.**

(10) Inspect unit's serial number at power up on the displayed LCD screen.

(11) Inspect the cooling fan is blowing on the side of the unit.

(12) Inspect inner tub/payload of unit for any irregular appearance of the plastic liner.

(13) Inspect the battery percentage is 100% after 24 hours of continuous charge.

(14) Inspect the LCD display for any error coded on the screen relating to the battery. (NOTE: A zero value listed on the data log in the battery charge section along with an error code on the LCD means the control board needs replacement.)

(15) Check Service Mode: With the lid closed, press and hold **"MODE"** for 3 to 5 sec. Press **"DISPLAY"** once. Verify that the top right or the screen displays **"K:_____L"**. When the lid is opened, the **"L"** will no longer be displayed, only the **"K:_____"**. This verifies that the magnets on the lid are getting read by the unit.

b. Verify firmware version procedure

(1) Operational enhancements to the HemaCool 5 firmware were last made on 19 May 2005. There were adjustments made to the control algorithms which allow the units to maintain COOL and FREEZE set point temperatures under more extreme conditions. Units with firmware dates prior to 19 May 2005, although not necessary for proper operation, should be considered for firmware upgrades that may potentially improve their already noteworthy performance.

(2) An additional change that was implemented in the 19 May 2005 firmware is the elimination of the annoying audible alarm that is emitted when the HemaCool is first conditioned. This means that when the HemaCool is first changed from IDLE to either COOL or FREEZE, the alarm will not sound until after the unit has achieved the set point.

(3) Not all HemaCool 5's are capable of running the updated firmware. To verify your unit has the latest firmware revision or is able to be upgraded, do the following:

(a) Verify your unit has a serial number 5000 or greater. The firmware upgrade is only applicable to serial numbers 5000 and greater.

(b) Plug the unit into an AC outlet and leave in IDLE mode.

(c) Depress and hold MODE key for 3-4 seconds until the display page changes to a diagnostic screen, then release.

(d) Depress and release center DISPLAY button to page to the next screen.

(e) The date at the top left hand of the screen is your firmware release date. If it displays a date prior to 19 May 05, one should consider having the unit's firmware upgraded.

(4) With the latest version (19 May 05) of the HemaLog software loaded on PC and connected to the unit with a standard serial cable, upgrading the firmware of the HemaCool is a simple 2 click process. Follow the instructions described on page 1-32 of the HemaCool Operating Instruction Manual. Contact AcuTemp Technical Support if you need the latest version of the firmware or need any assistance.

c. Performance checks.

Follow Manufacturer's Recommended Checkout Procedures

d. Cleaning.

(1) **CABINET.** Clean the exterior with mild soap and water. Never use abrasive scouring powders.

(2) **INTERIOR AND DOOR.** Wash interior compartment and door gasket with soap and water. Mix 2 tablespoons of baking soda (if available) with one quart of warm water. Do not use an abrasive powder, solvent, polish cleaner or undiluted detergent.

(3) **STAINLESS STEEL TOP.** Clean all stainless steel components of the sink using a stainless steel cleaner.

e. Packaging

(1) Pour about a pint or so of antifreeze into the pump housing and ensure there are no leaks from the sink.

(2) Pack the accessories.

(3) Wrap the sink with bubble wrap or

(4) Band the top and bottom horizontally along the folding lips of the box.

f. Tips for the Medical Equipment Repairer;

(1) Perform visual inspection on unit to be tested for discrepancies related to assembly.

(2) Read the log on the unit to determine the cycle intervals to be within the specified 4 hours tolerance at normal ambient temperatures. Battery voltages should never fall below 12.0 VDC, if it does, replace immediately. Important to input the proper date and serial number as well as time on the initial power up of the unit because this will be useful on the units data log.

(3) Thermistor of the Unit's payload, responsible for the displayed temperature reading, is located inside the payload chamber bottom center, secured by a zip tie. Give the test equipment ample time to stabilize.

(4) If unit does not power up with ac power verified by a non working power supply led, replace board.

(5) If unit is not within tolerance, board replacement is required or the unit needs to be sent to the OEM as of this time for insulation replacement repair is required and is only performed at the manufacturer's level at this time.

(6) Upon review of the units data log, if there are missing information anomalies in the processors communication between the compressor and the CPU, separate the unit in question and tag with the appropriate tag to prevent unintended use. Example: missing codes stated on number 7 of this write up.

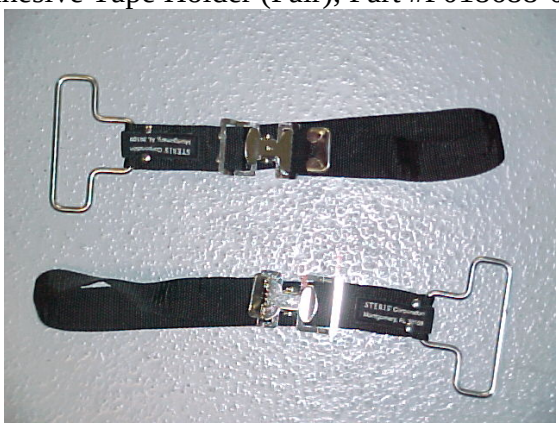
(7) Status codes on equipment data log:

Y/N	On/Off
L/F	Cool/Freeze
C	Compressor On
H	Heater On (Unit Goes On Cool Mode From Freeze By Activating Heater)
O	Lid Open

For additional information, contact ACUTEMP, 7610 McEwen Road, Dayton, OH 45459; phone: 937-312-0114, FAX: x-1277, www.acutemp.com or www.support@acutmep.com

APPENDIX K. OPERATING TABLE COMPONENTS

Adhesive Tape Holder (Pair), Part #P018688-091

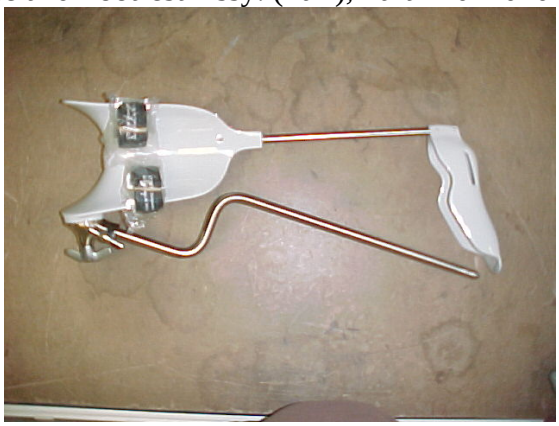


Winged Ether Screen Assy, Part #P077033-091

Lateral Braces (Pair), (AKA Kidney Bridge Post)
Large: Part #P626397-001, Small: Part #P626397-002

Wrist Holder Assy. (Pair), Part #P077036-091
(No longer available from Steris Corp.)

Knee and Footrest Assy. (Pair), Part #P077040-091

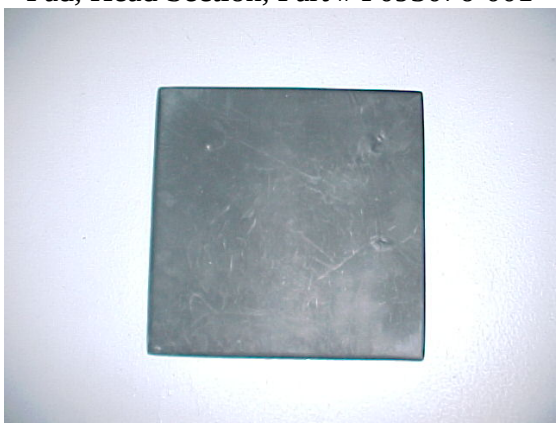


Pads, (Complete packaging of 3), Part #P150830177

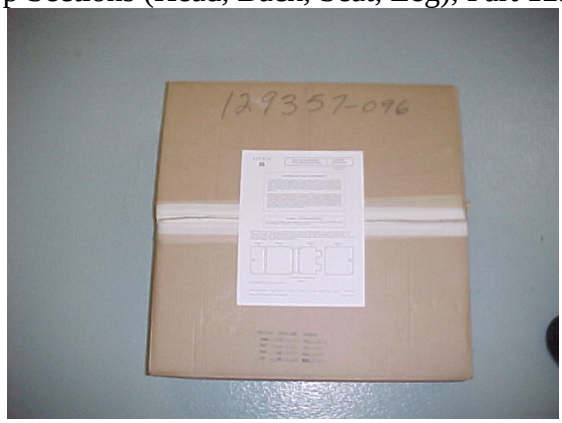
Pad, Foot Section, Part # P093074-001

Pad, Back Section, Part # P093075-001

Pad, Head Section, Part # P093076-001



X-ray Top Sections (Head, Back, Seat, Leg), Part 129357-096

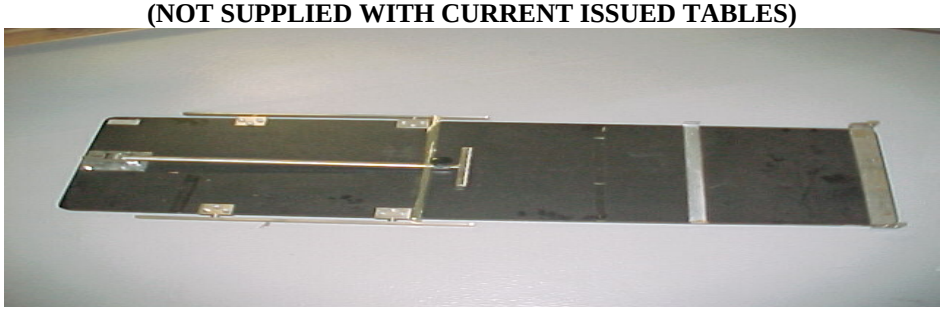


3” Arm Board Pad, Part #P150830-168

Arm Board w/o Pad, Part #P056130-001

Clark Sockets (4 ea), Part #77038-091
Sold in Pairs $255
(No longer available from Steris Corp.)

62” Image Intensifier Board, Part # BF16-400
(NOT SUPPLIED WITH CURRENT ISSUED TABLES)



APPENDIX L. USE OF HEPA FILTER WITH IMPACT 754M VENTILATOR

This Appendix to SB 8-75-S6 is regarding the failure of the IMPACT 754M portable ventilator during use of the internal compressor. Operating the ventilator in a dirty or contaminated environment may hinder the performance of the internal compressor leading to premature failure. Impact has a HEPA filter that can be used to alleviate or remedy this situation. Portions of information used in the following paragraphs are consistent with information provided by the Centers of Disease Control, www.cdc.gov.

1. HEPA filters are regarded as the best form of air filtration devices available today. HEPA stands for High-Efficiency Particulate Arrestance. According to U.S. Military Standard MIL-STD-282, HEPA filters are defined as air-cleaning devices that have a proven minimum removal efficiency of 99.97% of particles in the air equal to 0.3 um (microns) in diameter with higher efficiency for both larger and smaller particle sizes. The reason 0.3 microns is used in the definition is because it's the particle size in which all mechanical filters are LEAST efficient in capturing and removing from the air. A micron is a measure of length: 1 micron equals 1 millionth of a meter. A particle size of 10 microns or less is not visible to the naked eye.

2. The Uni-Vent® Eagle™ Model 754 comes equipped with an internal compressor. The compressor is a mechanical component that generates air pressure for ventilation. Pressure is needed to deliver a volume of gas to the patient. In order for the compressor to operate, it needs to entrain air from the atmosphere. The Eagle's™ air entrainment port does not come with a HEPA filter installed. When the ventilator is operated in a clean environment like a hospital, a HEPA filter covering the air-entrainment port is generally not needed. It is highly recommended that when the ventilator is operated in environments where it is exposed to higher than normal levels of airborne contaminants that a HEPA filter be installed. The HEPA filter will help protect the inside of the ventilator from contamination and prolong the life of the internal components by preventing the build up of foreign matter like dust and dirt.

3. Use of a HEPA filter will also help protect the patient's airway from exposure to this foreign particulate matter. Undesirable contaminants that the HEPA filter will help block include: smoke, mold, hair, dust, dirt, pet dander, bacteria, viruses and fungi. Please note that "HEPA-Type" filters may look like a certified HEPA filter; however, their performance may not match that of a true HEPA filter. No filter, including a true HEPA filter, can trap 100% of all contaminants. However, in terms of efficiency and performance, HEPA filters are the highest performing air filtration devices currently available. HEPA filters should ALWAYS be used in situations where the ventilator must be operated in contaminated environments. Two additional features of HEPA filters that add to their value is that unless the air entering the filter is humidified, bacteria and viruses that are trapped in the filter will dry out and die. The second feature is that the filter becomes more efficient over time because as the filter gets filled with trapped particles, it becomes more difficult for matter to pass through the filter. Depending on use and level of contaminate exposure, HEPA filters, like a regular filter need to be changed based on the manufacturer's recommendation.

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